05sep02 15:04:05 User259284 Session D1930.1

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SYSTEM:OS  - DIALOG OneSearch
  File 155:MEDLINE(R)  1966-2002/Sep W1
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  File  73:EMBASE  1974-2002/Aug W4
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  File 987:TULSA (Petroleum Abs)  1965-2002/Sep W3
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  File  35:Dissertation Abs Online  1861-2002/Aug
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         (c) 2002 INIST/CNRS
  File 238:Abs. in New Tech & Eng.  1981-2002/Aug
         (c) 2002 Cambridge Scient. Abstr
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  File  99:Wilson Appl. Sci & Tech Abs  1983-2002/Jul
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*File  34: Alert feature enhanced for multiple files, duplicates
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         (c) 2002 Cambridge Sci Abs
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  File 350:Derwent WPIX  1963-2002/UD,UM &UP=200256
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*File 350: Alerts can now have images sent via all delivery methods.
See HELP ALERT and HELP PRINT for more info.
  File 347:JAPIO  Oct 1976-2002/Apr(Updated 020805)
         (c) 2002 JPO & JAPIO
*File 347: JAPIO data problems with year 2000 records are now fixed.
Alerts have been run.  See HELP NEWS 347 for details.


Set     Items   Description
S1    1760505   S1:S10
S2    1760505   S1 OR NMR
S3      17693   WAVEFORM??(2N)(GENERAT??? OR REFLECT????)
S4       2021   WAVE()FORM? ? AND WAVE(3N)(GENERAT??? OR REFLECT????)
S5     285306   (TIME OR TEMPORAL???)(4N)(PROPERTY OR PROPERTIES OR SIGNAL?
             ?)
S6     318317   (TRANSMIT???? OR TRANSMISSION?? OR TRANSCEIV????)(3N)SIGNA-
             L? ?
S7      96171   S1 AND (SCAN? ? OR SCANN????)
S8      34044   S1 AND (HF OR RF OR RADIO OR RADIOFREQUENC???? OR "R"()"F")
S9       2160   S1 AND (SIMULAT????? OR SYNTHETIC OR SYNTHESI?????)(3N)(GE-
             NERAT????? OR SIGNAL? ?)
S10     39567   S1 AND (TESTING OR TRAIN????)
S11      3099   S1 AND (FREE()INDUCTION OR FID)
S12    225490   S1 AND DATA
S13        60   S1 AND (BASEBAND? ? OR BASE()BAND? ?)
S14     19577   S3:S4
S15       780   5AND14
S16        70   6AND15
S17         3   7AND15
S18         1   9AND15
S19         5   10AND15
S20         0   11AND15
S21        11   12AND15
S22         0   13AND15
S23      4470   S8 AND (S7 OR S9 OR S10 OR S11 OR S13)
S24    304103   (S5 OR S14)
S25         5   13AND24
S26       183   23AND24
S27         1   8AND15
S28       668   6AND8
S29       700   8AND24
S30       183   23AND29
S31       142   7AND9
S32     17357   7AND12
S33         5   7AND13
S34      3648   7AND10
S35       167   7AND11
S36        56   31AND32
S37         0   31AND33
S38         7   31AND34
S39         0   31AND35
S40        36   S30 AND S31:S36
S41         8   8AND36
S42        36   8AND40
S43        36   24AND40
S44        69   S17:S19 OR S21 OR S25 OR S27 OR S33 OR S41:S42
S45        57   RD S44 (unique items)
S46        57   (S8 OR SIGNAL? ?) AND S45
S47        56   S46 NOT S46/2002
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46/3,AB/1 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09476447 97366236 PMID: 9223046
A multidimensional partition analysis of SSFP image pulse sequences.
Petersson J S; Christoffersson J O
Department of Radiation Physics, Lund University, University Hospital MAS, Malmo, Sweden.
Magnetic resonance imaging (UNITED STATES) 1997, 15 (4) p451-67, ISSN 0730-725X Journal Code: 8214883
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
The k-space description, of **MRI** pulse sequences, has been combined with a partition model in order to model the image reconstruction and the contrast behaviour found in SSFP pulse sequences. A partition represents the magnetisation created, due to excitation by a given **rf** pulse. In the present model, it is visualised as a set of parameters rather than a vector sum taken over a collection of spins. A multidimensional parameter space, where each dimension is associated with one of the partition parameters, is introduced in order to describe the interaction between partitions and pulse sequence events (e.g., **rf** pulses and gradients). The three k-space dimensions form the first three dimensions and higher orders are used to handle phase dispersions due to diffusion and main field inhomogeneities. The model makes it possible to perform fast simulation of images resulting from general SSFP pulse sequences. A computer implementation generates images (256 matrix), containing more than 10 different T1/T2 combinations, in less than 45 s on a 120 MHz Pentium computer. The contrast behaviour and **signal** intensities found in **simulated** images show excellent agreement with **data** generated using a clinical **MRI scanner** system.

46/3,AB/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

08449595 95198516 PMID: 7891530
Ultra-rapid gradient echo imaging.
Heid O; Deimling M; Huk W J
Neuroradiological Department, Neurosurgical Hospital, University of Erlangen-Nurnberg, Germany.
Magnetic resonance in medicine : official journal of the Society of Magnetic Resonance in Medicine / Society of Magnetic Resonance in Medicine (UNITED STATES) Jan 1995, 33 (1) p143-9, ISSN 0740-3194
Journal Code: 8505245
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
A novel ultra-rapid gradient echo (URGE) **NMR** imaging technique is introduced, which is capable of continuous high resolution 3D **scanning** while neither subject to fast gradient switching nor excessive **RF** power deposition. Sampling **free induction** decays instead of creating spin echoes enables maintaining a workable steady state magnetization. Due to segmented k-space acquisition, chemical shift, diffusion, and field inhomogeneity effects do not present major problems. We report on implementations acquiring from 32 x 64 x 64 partial-Fourier image sets in 0.72 s, allowing for single-shot magnetization-prepared 3D imaging, to 128 x 128 x 128 image sets in 13.3 s and 21.5 s on a standard **MRI scanner**.

46/3,AB/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

07677828 93204637 PMID: 8455429
Pulsatile motion artifact reduction in 3D steady-state-free-precession-echo brain imaging.
Tien R D; Bernstein M; MacFall J
Department of Radiology, Duke University Medical Center, Durham, NC 27710.
Magnetic resonance imaging (UNITED STATES) 1993, 11 (2) p175-81, ISSN 0730-725X Journal Code: 8214883
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
An image can be made from the echo of a steady-state-free-precession and pulse sequences for this purpose have been implemented on various commercial systems under such names as "CE-FAST" and "SSFP" (herein generically termed SSFP-Echo). Such sequences can be employed to achieve strong T2-weighting with reduced T2* effects, but are limited by their sensitivity to flow and motion which produce artifacts. Simple considerations indicate that this sensitivity is primarily related to the (implementation-dependent) moments of the imaging gradients. In this work, **MR** imaging of the brain using a standard implementation of the sequence with large moment "crusher" gradients on the slice select axis (to dephase the **FID** of the SSFP) is compared to a modified implementation with reduced moment gradient pulses and different **radiofrequency** (**RF**) phase cycling. Asymmetric echo acquisition and narrowed bandwidth was used to further reduce gradient moments. The sensitivity of this sequence to flow and motion artifacts, especially for motion perpendicular to the slice, is thus expected to be significantly reduced. The modified sequence was found to have flow and motion artifacts reduced by a factor of five in the axial plane and a factor of two in the coronal plane. These modifications can thus significantly reduce the flow and motion artifacts commonly seen in conventional images of the SSFP echo with little or no penalty in **scan time** or **signal**-to-noise ratio.

46/3,AB/4 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

07278660 92208019 PMID: 1554755
A fiber-optic broadband CT/**MR** video communication system.
Huang H K; Tecotzky R H; Bazzill T
Department of Radiological Sciences, UCLA 90024-1721.
Journal of digital imaging : the official journal of the Society for Computer Applications in Radiology (UNITED STATES) Feb 1992, 5 (1) p20-5, ISSN 0897-1889 Journal Code: 9100529
Contract/Grant No.: PO1 CA 51198; CA; NCI; RO1 CA 39063; CA; NCI; RO1 CA 404565; CA; NCI
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Our department operates three **magnetic resonance** (**MR**) and three computed tomography (CT) **scanners** that are located in three different buildings up to 2 km apart. We have designed and implemented a multichannel, fiber-optic broadband video communication system as a remote **scanner** monitoring network. This system consists of **baseband** and broadband fiberoptic transmitters, receivers, and multiplexers. The structure of the video network is supported by two strategically located

headends (distributors) connecting local/remote **scanners** and monitoring stations. The system is capable of serving up to 5 km from each headend. The video **signal** from each **scanner** is sent through a **baseband** fiber-optic link to a headend, where it is frequency modulated, multiplexed with other **scanner** video **signals**, and distributed over broadband fiber-optic links to monitoring stations. Each receiver consists of a demodulator, a channel selectable tuner, and a video monitor. The current design provides up to 16 **scanner** channels and 16 remote monitoring station connections. Monitoring stations are placed in 14 clinical locations including the following reading rooms: thoracic, neuro, abdomen, musculoskeletal, gastrointestinal, genitourinary, and pediatric radiology. A radiologist can use any of these 14 monitoring stations to view a patient's CT/**MR** images in real-time as they appear on any of the six **scanner** consoles. By selecting the proper channel assigned to a patient's **scanner** , the radiologist may monitor the examination while using the telephone to communicate with the technologist at the **scanner** site. This fiber-optic broadband video communication system has been integrated into daily clinical use for over 6 months.

46/3,AB/5 (Item 5 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

06872634 91186761 PMID: 2082123
Multiecho multimoment refocussing of motion in **magnetic resonance** imaging: MEM-MO-RE.

Duerk J L; Simonetti O P; Hurst G C; Motta A O
Department of Radiology, MetroHealth Medical Center, Cleveland, Ohio 44109.

Magnetic resonance imaging (UNITED STATES) 1990, 8 (5) p535-41, ISSN 0730-725X Journal Code: 8214883
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Gradient moment nulling techniques for refocussing of spin dephasing resulting from movement during application of **magnetic resonance** imaging gradients have gained widespread application. These techniques offer advantages over conventional imaging gradients by reducing motion artifacts due to intraview motion, and by recovering **signal** lost from spin dephasing. This paper presents a simple technique for designing multiecho imaging gradient waveforms that refocus dephasing from the interaction of imaging gradients and multiple derivatives of position. Multiple moments will be compensated at each echo. The method described relies on the fact that the calculation of time moments for nulled moment gradient waveforms is independent of the time origin chosen. Therefore, **waveforms** used to **generate** the second echo image for multiple echo sequences with echo times given by TEn = TE1 + (n - 1) * (TE2 - TE1) may also be used for generation of the third and additional echo images. All echoes will refocus the same derivatives of position. Multiecho, multimoment refocussing (MEM-MO-RE) images through the liver in a patient with ampullary adenocarcinoma metastatic to the liver demonstrate the application of the method in clinical **scanning**.

46/3,AB/6 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

06848804 91171808 PMID: 2077335
Motion-insensitive, steady-state free precession imaging.

Zur Y; Wood M L; Neuringer L J
Francis Bitter National Magnet Laboratory, Massachusetts Institute of

Technology, Cambridge 02139.
Magnetic resonance in medicine : official journal of the Society of Magnetic Resonance in Medicine / Society of Magnetic Resonance in Medicine (UNITED STATES) Dec 1990, 16 (3) p444-59, ISSN 0740-3194
Journal Code: 8505245
Contract/Grant No.: S07-RR05598; RR; NCRR
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Steady-state free precession (SSFP) pulse sequences employing gradient reversal echoes and short repetition time (TR) between successive **rf** excitation pulses offer high **signal**-to-noise ratio per unit time. However, SSFP sequences are very sensitive to motion. A new SSFP method is presented which avoids the image artifacts and loss of **signal** intensity due to motion. The pulse sequence is designed so that the time integral of each of the three gradients is zero over each TR **time** interval. The **signal** then consists of numerous echoes which are superimposed. These echoes are isolated by combining the **data** from N different **scans**. In each **scan** a specific phase shift is added during every TR interval. Each of these N isolated echoes produces a motion-insensitive, artifact-free image. Because all the echoes are sampled simultaneously, the **signal**-to-noise ratio per unit time in this SSFP method is higher than in existing SSFP techniques which sample only one echo at a time. The new method was implemented and used to produce both two- and three-dimensional images of the head and cervical spin of a human patient. In these images the high **signal** intensity of cerebrospinal fluid is preserved regardless of its motion. Further work is required to evaluate the imaging parameters (TR, TE, **rf** tip angle) so as to give optimal tissue contrast for the various echoes.

46/3,AB/7 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

4428001 INSPEC Abstract Number: A9315-3325-003
Title: Single-**scan** simultaneous measurement of **NMR** spin-lattice and spin-spin relaxation times
Author(s): Moore, J.R.; Metz, K.R.
Author Affiliation: Dept. of Radiol., Harvard Med. Sch., Boston, MA, USA
Journal: Journal of Magnetic Resonance, Series A vol.101, no.1 p. 84-91
Publication Date: Jan. 1993 Country of Publication: USA
ISSN: 1064-1858
Language: English

Abstract: An **NMR** method for measuring both T/sub 1/ and T/sub 2/ in a single rapid experiment is described. The technique is applicable to many single-peak and two-peak systems, provided that the spin-lattice and spin-spin relaxation processes are monoexponential in nature. The **RF** pulse sequence consists of a **train** of 90 degrees pulses applied with a resonance offset Delta f and a pulse repetition time tau chosen so that tau Delta f=1/2. The transverse magnetization is sampled once after each pulse. The resulting **time**-domain **signal** can be parameterized by the initial average DC offset A/sub 0/, the final offset A/sub f/, and the exponential decay time constant of the offset, T/sub r/. The relaxation times are determined from T/sub 1/=A/sub 0/T/sub r//A/sub f/ and T/sub 2/=A/sub 0/T/sub r//(2A/sub 0/-A/sub f/). An inversion pulse can be applied just prior to the pulse **train** to increase the dynamic range of the experiment and to allow measurements when T/sub 1/ equivalent to T/sub 2/. Relaxation times measured by applying this technique to several one- and two-peak systems are in good agreement with the results obtained from

conventional relaxation-time measurement methods.
Subfile: A

46/3,AB/8 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

02965941 INSPEC Abstract Number: A87108610
Title: Fast-**scan** **NMR** imaging
Author(s): Iwaoka, H.; Matsuura, H.; Sugiyama, T.; Hirata, T.
Author Affiliation: Yokogawa Electr. Corp., Musashino, Japan
Journal: Transactions of the Society of Instrument and Control Engineers vol.23, no.4 p.326-32
Publication Date: April 1987 Country of Publication: Japan
CODEN: TSICA9 ISSN: 0453-4654
Language: Japanese
Abstract: Describes the fast recovery (FR) method for fast-**scan** **nuclear magnetic resonance** imaging. The FR method uses a sequence of four **radio** frequency pulses, alternating selective 90 degrees nutation pulses and nonselective 180 degrees pulses. One **free induction** decay **signal** and one echo **signal** are detected and averaged to compute a 2D image. In the modified FR method, extra 180 degrees pulses are applied between 90 degrees pulses to cause refocusing and the resultant spin echo **signals** are averaged to improve the **signal** to noise ratio. For the FR and modified FR sequences, the macroscopic magnetization is restored to equilibrium quickly and exactly; **scan** time can consequently be less than that for conventional pulse sequences, such as used in the saturation recovery method, without any penalty in **signal** to noise ratio. Expressions are derived for the **signal** to noise ratio, **scan time** ratio and contrast noise ratio, the FR and modified FR methods are compared with the saturation recovery method, and experimental results are presented for human body images.
Subfile: A

46/3,AB/9 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS

1936450 NTIS Accession Number: PB96-142492
Mathematical Foundations for **Magnetic Resonance** Imaging
Mansson, S.
Lund Univ. (Sweden). Dept. of Electrical Measurements.
Corp. Source Codes: 016503060
Report No.: LUTEDX-TEEM-3006-SE
1995 86p
Languages: English
Journal Announcement: GRAI9608
Also pub. as Lund Univ. (Sweden). Dept. of Electrical Measurement. rept. no. REPT-2/1995.
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NTIS Prices: PC A05/MF A01
Over the past decade, the technical development of **Magnetic Resonance** Imaging (**MRI**) has been very rapid. This report provides the theoretical framework for the understanding and the design of new imaging sequences, and points out limitations of achievable imaging speed, **signal** /noise-ratio, image resolution etc. imposed by the

imaging hardware, but also by the laws of physics. A relatively new imaging technique, the spiral **scan**, which may reduce the imaging time without increased demands for gradient rise time and **data** sampling speed, is thoroughly studied analytically, and with computer simulations. This method further promises a better suppression of artifacts caused by motion, than the commonly used spin echo and gradient echo methods. The computer simulations also implies an improved **signal**/noise-ratio. A method for design of **radio**-frequency pulses with arbitrary frequency response is also discussed. The method is based on the principles for digital filter design. An improved **signal** uniformity in 3-dimensional images was demonstrated using a **radio**-frequency pulsed of this design.

46/3,AB/10 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

03320089
E.I. Monthly No: EIM9110-051533
Title: Multi-channel fiber optic broadband video communication system for monitoring CT/**MR** examinations.
Author: Huang, H. K.; Kangarloo, H.; Tecotzky, R.; Cheng, X.; Vanderweit, D.
Corporate Source: Univ of California, Los Angeles, CA, USA
Conference Title: Medical Imaging V: Image Capture, Formatting, and Display
Conference Location: San Jose, CA, USA Conference Date: 19910224
E.I. Conference No.: 14986
Source: Proceedings of SPIE - The International Society for Optical Engineering v 1444. Publ by Int Soc for Optical Engineering, Bellingham, WA, USA. p 214-220
Publication Year: 1991
CODEN: PSISDG ISSN: 0277-786X
Language: English
Abstract: The Department of Radiological Sciences, UCLA operates five **MR** and four CT **scanners** located in three different buildings and two mobile sites. We have designed and implemented a multi-channel fiber optic broadband video communication system connecting these **scanners** together. This system consists of **baseband** fiber optic transmitters and receivers, a multiplexing headend, and broadband fiber optic transmitters and receivers. It can serve up to 5 km. The video **signal** from each **scanner** is sent through a **baseband** fiber optic link to the headend, where it is frequency modulated and distributed over broadband fiber optic links. A receiver, consisting of a demodulator, a TV monitor, and a channel selector, is placed at fourteen strategic locations including the fiber optic hub rooms, chest, neuroradiology, abdomen, bone, gastrointestinal, genitourinary, and pediatric reading rooms as well as scheduling rooms. A radiologist can use any of these fourteen receivers to view a patient's CT/**MR** image in real time by selecting the proper channel assigned to the **scanner**, and use the telephone to communicate with the technologist to monitor the examination. This fiber optic broadband video communication system has been integrated into daily clinical use. (Author abstract) 5 Refs.

46/3,AB/11 (Item 1 from file: 73)
DIALOG(R)File 73:EMBASE

11406625 EMBASE No: 2001420908
Real-time cardiac cine imaging with SPIDER: Steady-state projection imaging with dynamic echo-**train** readout

Larson A.C.; Simonetti O.P.
A.C. Larson, Department of Biomedical Engineering, Northwestern University, Chicago, IL United States
AUTHOR EMAIL: a-larson@northwestern.edu
Magnetic Resonance in Medicine (MAGN. RESON. MED.) (United States)
2001, 46/6 (1059-1066)
CODEN: MRMEE ISSN: 0740-3194
DOCUMENT TYPE: Journal ; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 34

Steady-state projection imaging with dynamic echo-**train** read-out (SPIDER) is a multiecho radial k-space trajectory TrueFISP sequence developed for real-time cine imaging of the heart. This new pulse sequence combines the superior SNR and blood-to-myocardium contrast of TrueFISP with the increased **scan** time efficiency of EPI and undersampled projection reconstruction. SPIDER sequence **RF** repetition time (TR) was minimized by limiting the echo-**train** to a length of three while acquiring the first and third echoes asymmetrically. A temporal resolution of 45 ms was achieved with TR/TESUB1/TESUB2/TESUB3 of 3.24/ 0.6/1.6/2.6 ms and a factor of 2 view sharing scheme. Phantom experiments showed little difference between the (radical)TSUB2/TSUB1 weighting of the **signals** acquired at each of the echo times but did show considerable off-resonance modulation between them. In vivo experiments demonstrated the feasibility of using the SPIDER sequence for real-time imaging in the cardiac short axis orientation. (c) 2001 Wiley-Liss, Inc.

46/3,AB/12 (Item 1 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01625907 AADC630394
PULSATILE EFFECTS IN **MAGNETIC RESONANCE** FLOW IMAGING (BLOOD, CEREBROSPINAL FLUID)

Author: FRANCK, ANDERS LARS
Degree: FIL.DR
Year: 1997
Corporate Source/Institution: UPPSALA UNIVERSITET (SWEDEN) (0903)
Source: VOLUME 59/02-C OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 389. 32 PAGES
ISBN: 91-628-2702-2
Publisher: DEPARTMENT OF DIAGNOSTIC RADIOLOGY, UPPSALA UNIVERSITY HOSPITAL, S-751 85 UPPSALA, SWEDEN

Magnetic resonance (**MR**) flow imaging methods have become an important tool in the evaluation of vascular diseases. They can also be used in studies of the hemodynamic behavior of the vasculature and in investigations of the complex interactions between blood, brain tissue and cerebrospinal fluid (CSF) dynamics. The pulsatile nature of these compartments justifies studies on the influence of pulsatility in **MR** flow images. The purpose of this work was to investigate macroscopic pulsatile effects in **MR** flow imaging. This involved numerical simulations and flow phantom experiments, and the implementation of motion sensitive pulse sequences in vitro and in vivo, in both quantitative and qualitative studies.

Pulsatile brain motion and CSF flow were measured by means of velocity sensitive **MR** pulse sequences. The effect of the pulsatility on the accuracy of these measurements was evaluated theoretically using numerical simulations.

Pulsatile artifacts in time of flight **MR** angiography were investigated. With the aim of reducing artifacts and obtaining high vessel **signal** intensity with a relatively small increase in total acquisition time, compared to conventional **MR** angiography studies, different **data** acquisition strategies were explored. Numerical simulations of these strategies were correlated with results of flow phantom experiments.

A bolus-tagging **MR** method based on inversion of spin magnetization was developed for a graphic depiction of three-dimensional flow fields for pulsatile flow through complex geometries. Tagging efficiency was improved by using adiabatic **radio** frequency (**RF**) pulses. The method was compared with computational fluid dynamic (CFD) simulations in a steady flow situation.

In spite of the low temporal resolution, accurate measurement of brain motion and CSF flow could be achieved if the resulting velocity profile was corrected with a time shift which can be interpreted as equivalent to the time at which the obtained mean velocity is actually measured.

Pulsatile artifacts in **MR** angiography images could be reduced, with relatively little increase in **scan** time, by using cardiac phase specific (CPS) gating together with a reordered-**data**-collection strategy. A method for depicting the flow field in multiple levels for pulsatile flow through complex geometries was presented, and depiction was improved with the use of adiabatic **RF** pulses. The results from both these methods were in good agreement with numerical **simulations**. It appeared that **signal** void in **MR** angiography images from secondary flow effects in curved vessels was generated only in diastole. Elimination of such artifacts may therefore be possible with the use of CPS gating together with a suitable reordering-**data**-collection strategy.

46/3,AB/13 (Item 2 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01203814 AADDX94523
THE DEVELOPMENT OF A HIGH-RESOLUTION **MRI** SYSTEM FOR THE STUDY OF ARTHRITIS IN FINGER JOINTS (OSTEOARTHRITIS)
Author: FRY, MARTIN EDMUND
Degree: PH.D.
Year: 1990
Corporate Source/Institution: UNIVERSITY OF EXETER (UNITED KINGDOM) (5016)
Source: VOLUME 52/09-B OF DISSERTATION ABSTRACTS INTERNATIONAL. PAGE 4890. 332 PAGES

Available from UMI in association with The British Library.

Building of a **magnetic resonance** imaging (**MRI**) system in-house led to a relatively low-cost approach.

The main component of the system is a small bore 0.5 T superconducting magnet. This magnet was specified to be large enough to accommodate the major joints of the wrist and hand, but small enough to allow the subject to sit externally in an upright position with only their arm being placed in the magnet.

The **radiofrequency** (**RF**) system was assembled from in-house designed and commercially available modules. The system for generating magnetic field gradients used in-house designed circuits to provide computer-controlled manipulation of the gradient waveforms, commercially available audio power amplifiers and either one of two gradient coil sets. The pulse synthesis and **data** acquisition unit provides accurate timing of the **generation** of **waveforms**, control of the **RF** system and **MR signal** acquisition. The operation of this system is programmed by, and synchronized with, the computer system which is based on a PC with the addition of electronic modules to enhance performance in system control, **data** processing and image display.

The performance of the imaging system was analysed using test objects and test sequences, and human volunteers. A gradient echo saturation recovery sequence proved optimal for generating images of cartilage, surrounding structures and bones. Averaging was used to improve SNR, but this did not result in unacceptably long **scan** times, and no artefacts due to movement of the finger were observed. Analysis of these images allows genuine detail and information on tissue organization to be distinguished from possible **MRI** artefacts.

The high-resolution images obtained in preliminary studies of patients with osteoarthritis exhibited a diverse pattern of joint change, including soft tissue proliferation, extensor expansion, osteophyte formation and joint subluxation. (Abstract shortened by UMI.)

46/3,AB/14 (Item 3 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

1011203 AAD8804053
FOURIER-TRANSFORM SPECTRA OF TAILORED AND CLIPPED **TIME**-DOMAIN **SIGNALS**: APPLICATIONS FOR **MAGNETIC RESONANCE** IMAGING AND MASS SPECTROMETRY
Author: HSU, ANNJIA TINNA
Degree: PH.D
Year: 1987
Corporate Source/Institution: THE OHIO STATE UNIVERSITY (0168)
Source: VOLUME 49/02-B OF DISSERTATION ABSTRACTS INTERNATIONAL. PAGE 384. 280 PAGES

A clipping technique for Fourier transform ion cyclotron resonance (FT/ICR) mass spectrometry was developed to manipulate **time**-domain ICR **signals** and was proved to have advantages for improving **data** storage efficiency (reducing **data** storage requirement by a factor of 20) and performing fast and accurate library retrieval and identification. Furthermore, with laser desorption (LD) FT/ICR techniques, the chemical formulas of dye components in colored plastics were determined by exact mass measurement, and a dye concentration as low as 0.1% was detected. The chemical substances on the surface of pretreated glassy carbon electrodes were also identified as quinonic aromatics by LD/FT/ICR. The analysis of carbon clusters from glassy carbon, metal clusters, and complexes were also demonstrated.

Proton **NMR** spectroscopy for the in vivo of metabolites in a spatially resolved region with a clinical **magnetic resonance** imaging (**MRI**) device must contend with the 70% hydration of normal man. To suppress the huge water **signal** in a proton spectrum, a tailored time-domain **waveform generated** by inverse Fourier transformation of a frequency-modulated excitation spectrum was adopted to a GE signa **MRI** system. The result shows that the tailored waveform is theoretically and experimentally superior to the regular water elimination techniques (i.e., 1331 and 11 pulse sequences) for selective suppression of one spectral segment with simultaneous uniform excitation over the rest of the spectral frequency range.

46/3,AB/15 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

15471286 PASCAL No.: 02-0165138
VD-AUTO-SMASH imaging
HEIDEMANN Robin M; GRISWOLD Mark A; HAASE Axel; JAKOB Peter M
Department of Physics, University of Wuerzburg, Wuerzburg, Germany
Journal: Magnetic resonance in medicine, 2001, 45 (6) 1066-1074
Language: English
Recently a self-calibrating SMASH technique, AUTO-SMASH, was described. This technique is based on PPA with **RF** coil arrays using auto-calibration **signals** . In AUTO-SMASH, important coil sensitivity information required for successful SMASH reconstruction is obtained during the actual **scan** using the correlation between undersampled SMASH **signal data** and additionally sampled calibration **signals** with appropriate offsets in k-space. However, AUTO-SMASH is susceptible to noise in the acquired **data** and to imperfect spatial harmonic generation in the underlying coil array. In this work, a new modified type of internal sensitivity calibration, VD-AUTO-SMASH, is proposed. This method uses a VD k-space sampling approach and shows the ability to improve the image quality without significantly increasing the total **scan** time. This new k-space adapted calibration approach is based on a k-space-dependent density function. In this scheme, fully sampled low-spatial frequency **data** are acquired up to a given cutoff-spatial frequency. Above this frequency, only sparse SMASH-type sampling is performed. On top of the VD approach, advanced fitting routines, which allow an improved extraction of coil-weighting factors in the presence of noise, are proposed. It is shown in simulations and in vivo cardiac images that the VD approach significantly increases the potential and flexibility of rapid imaging with AUTO-SMASH.

46/3,AB/16 (Item 2 from file: 144)

14159885 PASCAL No.: 99-0357734

Scanning time efficient SLINKY for non-contrast **MRA** at low field

KECHENG LIU; TANTTU J; CASTREN A; RUTT B K

MR Division, Picker International Inc., Cleveland OH 44143, United States ; Picker Nordstar Inc., Vantaa, Finland; Imaging Research Laboratories, Robarts Research Institute, London, Ontario, N6A 5K8, Canada

Journal: Magnetic resonance imaging, 1999, 17 (5) 689-698

Language: English

To eliminate slab boundary artifact (SBA) for non-contrast multi-slab three-dimensional time-of-flight **magnetic resonance** angiogram (3D TOF **MRA**), we have previously developed a novel technique, termed SLINKY (Sliding Interleaved k SUB Y) acquisition in which a thin slab continuously "walks' along the z-axis while **data** are acquired in an interleaved fashion along the k SUB Y -axis. It has been demonstrated in our earlier works that SLINKY can suppress the SBA without any assumption of blood flow behavior, such as velocity or direction. At the same time, SLINKY keeps the same SNR as conventional multiple overlapping thin slab acquisition (MOTSA). Yet, this method is sensitive to any phase error along the k SUB Y axis. In our earlier application of SLINKY, we used navigator echoes to measure and correct the phase errors along the k SUB Y axis. The cost of using navigator echo collection is an increase in the imaging time. We therefore propose an improved SLINKY technique which does not use navigator echo collection for correcting phase errors, reducing the imaging time while keeping the same suppression of slab boundary artifacts. The present study demonstrates that by using a specifically designed **RF** pulse, the navigator echo collection can be avoided without incurring any extra ghosting or SNR reduction in the reconstructed images.

46/3,AB/17 (Item 1 from file: 34)

03337135 Genuine Article#: NX809 Number of References: 26

Title: THEORETICAL DESCRIPTION, MEASUREMENT, AND CORRECTION OF LOCALIZATION ERRORS IN P-31 CHEMICAL-SHIFT IMAGING (Abstract Available)

Author(s): KOCH T; BRIX G; LORENZ WJ

Corporate Source: DEUTSCH KREBSFORSCHUNGSZENTRUM,FORSCH SCHWERPUNKT RADIOL DIAGNOST & THERAPIE/D-69120 HEIDELBERG//GERMANY/

Journal: JOURNAL OF MAGNETIC RESONANCE SERIES B, 1994, V104, N3 (JUL), P 199-211

ISSN: 1064-1866

Language: ENGLISH Document Type: ARTICLE

Abstract: In 2D P-31 chemical-shift imaging (P-31 CSI), both Short slice-selective **RF** pulses and gradient-phase encoding are applied to achieve localization. **Signal** intensities in the resulting CSI spectra and thus CSI metabolite images may be seriously distorted due to deviations of the excitation profiles from the desired rectangular shape and two different voxel-bleeding mechanisms. Theoretical descriptions of these main effects are given. Phantom experiments were performed to compare the observed **signal** contaminations with the predictions from the corresponding numerical simulations. The dependence of the excitation profiles and the resulting contaminations on the **RF** pulse length, T-R/T-1, and the flip angle distribution is evaluated. By **scanning** the repetition time and the transmitter amplitude, these dependencies were examined and proved in phantom

measurements. For a 640 mu s slice-selective sine pulse, T-R/T-1 values below 0.03, and large flip angles (above 60 degrees), **signal** contaminations were observed exceeding the contribution from spins inside the desired slice. To measure the voxel-bleeding effects, we placed a water-filled cube whose dimensions matched those of a nominal CSI voxel inside a large sphere. A maximum contamination of 18% was observed. In order to remove such contaminations, an iterative algorithm has been developed which simultaneously corrects both voxel-bleeding effects. It is based on the assumption that tissue regions with approximately constant P-31 density can be defined using a corresponding H-1 image of the CSI slice. Application of the proposed correction method removed the observed voxel-bleeding effects and, including a compensation of additional **signal** variations due to **RF** field inhomogeneities, an increased metabolite image quality was obtained. (C) 1994 Academic Press, Inc.

46/3,AB/18 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013827159
WPI Acc No: 2001-311371/200133
XRPX Acc No: N01-223089
Impedance measuring apparatus for non-shielding twist pair cable of local area network system, generates wide range high frequency measurement **signal** by linearly modulating carrier **signal** with **base band signal**
Patent Assignee: HIOKI DENKI KK (HIOK-N)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 2001074794	A	20010323	JP 99245487	A	19990831	200133	B

Priority Applications (No Type Date): JP 99245487 A 19990831
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2001074794	A		10	G01R-027/02	

Abstract (Basic): JP 2001074794 A
Abstract (Basic):

NOVELTY - The impedance measuring apparatus has **signal** generation unit (2) supplying wide range high frequency measurement **signal** (SO). A modulation circuit (13) generates high frequency measurement **signal**, by linearly modulating carrier **signal** (SC) of predetermined frequency with **base band signal** (SB).

USE - For measuring wide range frequency characteristics of non-shielding twist pair (UTP) cable of LAN cable system.

ADVANTAGE - Wide range high frequency measurement **signal** corresponding to measured characteristic is obtainable, since the modulation circuit modulates the **base band signal** with carrier **signal** to obtain high frequency measurement **signal**. Overall measuring **time** is reduced since compensation process is performed even when correcting the measured value to compensation value.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of **signal** generation unit of impedance measuring apparatus. (The drawing includes non-English language text).

Signal generation unit (2)
Modulation circuit (13)
High frequency measurement **signal** (SO)

Base band signal (SB)
Carrier **signal** (SC)
pp; 10 DwgNo 2/11

46/3,AB/19 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013736137
WPI Acc No: 2001-220367/200123
XRPX Acc No: N01-157133
Magnetic resonance imaging procedure involves reprocessing **nuclear magnetic resonance** image of target, based on contrast echo time of **scanning** pulses set by user
Patent Assignee: TOSHIBA AMERICA MRI INC (TOKE)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 2000300539	A	20001031	JP 200094731	A	20000330	200123	B

Priority Applications (No Type Date): US 99281429 A 19990330
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2000300539	A		12	A61B-005/055	

Abstract (Basic): JP 2000300539 A
Abstract (Basic):
NOVELTY - **Nuclear magnetic resonance** image **data** is obtained by **scanning** a target with sequence of pulses that have specific **MR signal** echo **time**. The acquired **NMR** image **data** is reprocessed, based on new contrast echo time selected by operator at the time of moderate contrast correction.
USE - In medical field to contrast image **data** corresponding to fat and water in human body.
ADVANTAGE - Contrast between image **data** corresponding to fat and water is achieved efficiently, since **NMR** image **data** is processed based on contrast echo time as set by user.
DESCRIPTION OF DRAWING(S) - The figure shows **RF** gradient magnetic field wavelength timing diagram showing **MRI** pulse sequence for forming magnetic field echo **MRI** response.
pp; 12 DwgNo 1/5

46/3,AB/20 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012194596
WPI Acc No: 1999-000702/199901
XRPX Acc No: N99-000668
Digital modulation **signal** generator for multi-channel mobile communications system - has first input side receiver of several, coded, **base band** in phase **signals**
Patent Assignee: ADVANTEST KK (ADVA-N)
Number of Countries: 002 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 19821248	A1	19981119	DE 1021248	A	19980512	199901	B
JP 10313288	A	19981124	JP 97120537	A	19970512	199906	

Priority Applications (No Type Date): JP 97120537 A 19970512
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 19821248	A1		11	H04L-027/34	
JP 10313288	A		6	H04J-013/00	

Abstract (Basic): DE 19821248 A
The generator has two receivers, the first one for several, coded, **base band** in phase **signals** and a second one which retains several, coded, **base band** quadrature **signals**. A first memory is accessible by address data, formed by a logic combination from the coded **base band**-I-**signals** for each **time** period. The memory stores in phase data, representing a sum of products. of weighting and logic data of all coded **base band**-I-**signals**.

A second memory of same type of access is related to a logic combination of coded **base band**-Q-**signals** for each **time** period. The second memory stores quadrature data representing a sum of prods. of weighted and logic data of all coded **base band**-Q-**signals**. A quadrature modulator for carrier **signals** processes them by in phase data from first memory and quadrature data from the second one.

ADVANTAGE - Weighting data provision for **base band** **signal** of each channel without need for a digital multiplier, and facility for adjustment of **signal** power level.

Dwg.1/6

46/3,AB/21 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011960051
WPI Acc No: 1998-376961/199832
XRPX Acc No: N98-294784
Compensation method for magnetic field of **MR** system - two calibration sets are acquired using two test gradient pulse of opposite polarity, phase image sets obtained using Fourier transform which are used to calculate eddy currents
Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: ZHOU X
Number of Countries: 005 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5770943	A	19980623	US 96777561	A	19961230	199832	B

DE 19750637	A1	19980702	DE 1050637	A	19971114	199832
JP 10272120	A	19981013	JP 98209	A	19980105	199851
KR 98064809	A	19981007	KR 9778552	A	19971230	199949
IL 122623	A	20000217	IL 122623	A	19971216	200027

Priority Applications (No Type Date): US 96777561 A 19961230
Abstract (Basic): US 5770943 A

The method involves acquiring a calibration **data** set (200) using a pulse sequence by applying a test gradient pulse of one polarity, applying an **RF** excitation pulse to produce transverse magnetisation in a region of interest. A phase encoding gradient pulse is applied and an **NMR signal** is acquired over a **time** period (T) following the application of the test gradient pulse and it is sampled at times ti. The pulse sequence is repeated a number of times and the phase encoding gradient pulse is stepped through preset values. Another calibration **data** set is acquired (216) using the same method as before using a test gradient of the opposite polarity.

Each of the calibration sets are Fourier transformed (222) to produce two sets (224) of spatially and temporally resolved phase images. Corresponding The phase images from one set are subtracted (226) from the corresponding phase images in the other to form a phase-difference image set. Eddy current compensating values are calculated (232) based on the phase-difference images and these are applied to coils on the **MR** system during subsequent **scans**.

ADVANTAGE - Avoids distortion, **signal** intensity loss, ghosting, shading that are caused by eddy currents.

Dwg.2/8

46/3,AB/22 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011872110
WPI Acc No: 1998-289020/199826
XRPX Acc No: N98-227324

Modulated **signal** generation apparatus for digital communication system - generates digital **baseband signal** at set clock rate and sequentially outputs time information corresponding to it, fading generator receiving **time** information and **baseband signal**

Patent Assignee: ANRITSU CORP (ANRI)
Inventor: ITAHARA H
Number of Countries: 026 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 845885	A2	19980603	EP 97120840	A	19971127	199826	B
JP 10164156	A	19980619	JP 96317957	A	19961128	199835	
US 6061394	A	20000509	US 97976462	A	19971121	200030	
JP 3109997	B2	20001120	JP 96317957	A	19961128	200101	

Priority Applications (No Type Date): JP 96317957 A 19961128
Abstract (Basic): EP 845885 A

The apparatus incorporating a fading simulator includes a **baseband signal** generator (21) for generating a digital **baseband signal** at a set clock rate and sequentially outputting time information corresponding to the set clock rate. A fading parameter generator (32, 31) receives the time information sequentially output from the **baseband signal** generation unit together with the digital **baseband signal**, and outputs a desired fading parameter set in advance in correspondence with the time information.

A fading addition operator (22) executes a fading addition operation for the digital **baseband signal** output from the **baseband signal** generation unit by using the desired fading parameter output from the fading parameter generator and outputs a **signal** indicating a result of the operation. A digital/analog convertor (26a, 26b) D/A-converts the **signal** output from the fading addition operator. A quadrature modulator (27) quadrature-modulates the **signal** converted by the digital/analog convertor and outputs the quadrature-modulated **signal** as a modulated **signal**.

USE - For adding fading to **signal** to be transmitted to device to be tested.

ADVANTAGE - Adds fading with arbitrary amplitude and phase characteristic to modulated test **signal** to be output. Allows modulated test **signal** to be output while maintaining high output precision. Decreases number of necessary components.

Dwg.1/9

46/3,AB/23 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010857005
WPI Acc No: 1996-353958/199635
Related WPI Acc No: 1997-384782
XRPX Acc No: N96-298508

Full echo spiral-in or spiral-out **magnetic resonance** imaging for abdominal tumour imaging - **scanning** both sides of echo, first moving to edge of k-space, spiralling-in to origin at echo time, and then spiralling-out on path that is k-space conjugate of inward spiral

Patent Assignee: UNIV LELAND STANFORD JUNIOR (STRD)
Inventor: MEYER C H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5539313	A	19960723	US 95511174	A	19950804	199635	B

Priority Applications (No Type Date): US 95511174 A 19950804
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5539313	A		14		

Abstract (Basic): US 5539313 A

T2-weighted interleaved spiral **scanning** is employed for imaging abdominal tumours. The gradients **scan** k-space in a spiral-in and spiral-out sequence with a first spiral starting at the edge of k-space and reaching the origin at **signal** echo **time** and then spiralling out to the edge of k-space preferably as a k-space conjugate of the inward spiral.

The method involves positioning a body to be imaged in a static magnetic field, applying **RF** excitation pulses in the presence of a magnetic gradient for image slice selection, applying magnetic gradients during **signal** read-out so that the gradients **scan** k-space in a spiral-in and spiral-out sequence with a first spiral starting at an edge of k-space and reaching the origin at **signal** echo **time** and then a second spiral moves from the origin out to the edge of k-space, and detecting the echo **signal**.

The second spiral is the k-space conjugate of the first spiral. The magnetic gradient application during **signal** read-out and echo **signal** detection are repeated to obtain multiple interleaved k-space **scans**. A set of interleaves rotated through 180 deg.

contains sufficient **data** to reconstruct an image. Rotating through a full 360 deg. provides additional insensitivity to T2 decay, inhomogeneity, and flow.

ADVANTAGE - Exhibits smoothed out inhomogeneity and flow responses in different but similar ways.

Dwg.3,4/11

46/3,AB/24 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010571425
WPI Acc No: 1996-068378/199607
XRPX Acc No: N96-057497

Digital **RF** system testing method accomplishing integrated testing of digitally controlled **RF** transceivers - by testing digital controller and **base-band** processor by Boundary-**scan** testing, and using different test patterns for transmitter and receiver

Patent Assignee: AT & T CORP (AMTT); AMERICAN TELEPHONE & TELEGRAPH CO (AMTT)
Inventor: HEUTMAKER M S; JARWALA M; LE D K; LE DUY K
Number of Countries: 009 Number of Patents: 006
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5481186	A	19960102	US 94317070	A	19941003	199607	B
EP 706271	A2	19960410	EP 95306640	A	19950920	199619	
CA 2156655	A	19960404	CA 2156655	A	19950822	199629	
JP 8274821	A	19961018	JP 95276155	A	19951002	199701	
CA 2156655	C	19990126	CA 2156655	A	19950822	199915	
JP 3022281	B2	20000315	JP 95276155	A	19951002	200018	

Priority Applications (No Type Date): US 94317070 A 19941003
Abstract (Basic): US 5481186 A

The digital portion of the digital/**RF** system (10), including the digital controller (14) and the **base-band** processor (20), is tested by a digital test technique such as Boundary-**Scan** testing. Test patterns for the **RF** elements are down-loaded from the digital controller (14) to the **base-band** processor via a Boundary-**Scan** Test Access Port (TAP).

The **RF** transmitter (24) and the **RF** receiver (34) are tested by applying the test patterns from the **base-band** processor to the **RF** transmitter for transmission, and **signal** produced by the **RF** transmitter (24) in response to the applied test pattern is converted to a first digital **signal** stream for processing by the **base-band** processor (20) to determine the operability of the transmitter. The **signal** produced by the **RF** transmitter (24) is also received by the **RF** receiver (34) for demodulation and the demodulated receiver **signal** is then converted to a second **signal** stream for input to the **base-band** processor to determine the operability of the receiver.

ADVANTAGE - Provides testing of digital and **RF** elements of digital/**RF** system in integrated manner without need for specialised instrumentation.

Dwg.2/2

46/3,AB/25 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010459130
WPI Acc No: 1995-360449/199547
Related WPI Acc No: 1991-066868
XRPX Acc No: N95-267978
Video **signal generator** providing **waveform** for TV receiver display - converts analog input video **signal** into digital video **signal** using memory storing preset 1-horizontal line segment of digital video segment generated on basis of **signal** read from memory
Patent Assignee: MATSUSHITA ELECTRIC IND CO LTD (MATU); MATSUSHITA ELEC IND CO LTD (MATU)
Inventor: SUZUKI M; YAMADE S
Number of Countries: 005 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 679037	A2	19951025	EP 95110940	A	19900823	199547	B
KR 9404964	B1	19940607	KR 9013507	A	19900830	199611	
EP 679037	A3	19960703	EP 90116173	A	19900823	199636	
			EP 95110940	A	19900823		
EP 679037	B1	20000712	EP 90116173	A	19900823	200036	
			EP 95110940	A	19900823		
DE 69033590	E	20000817	DE 633590	A	19900823	200047	
			EP 95110940	A	19900823		

Priority Applications (No Type Date): JP 89289501 A 19891107; JP 89223567 A 19890830
Abstract (Basic): EP 679037 A

An input analog **signal** is converted into a corresponding digital **signal** and a device selects a predetermined **time** segment of the digital **signal**. The selected **time** segment of the digital **signal** is stored and a line counter counts horizontal **scanning** lines of an output video **signal**. The selected **time** segment of the digital **signal** is read out from the store in synchronism with a horizontal sync **signal** in a direction of a time axis.

An output **signal** is compared from the line counter and the read out **time** segment of the digital **signal**. A video **signal** is generated that represents a waveform of a time segment of the input analog **signal** which corresponds to the selected **time** segment of the digital **signal** in synchronism with a vertical sync. **signal**.

USE - TV receiver **testing**.

Dwg.1/12

46/3,AB/26 (Item 9 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010367097
WPI Acc No: 1995-268459/199535
Related WPI Acc No: 1993-405356; 1995-199279
XRPX Acc No: N95-206393
Acoustic imaging appts. for biopsy needle guidance, temp. variation monitoring - has circle within which test medium is placed and from which acoustic **signals** are broadcast from seven points and which are detected by computer accounting for transducer antennae to produce image
Patent Assignee: CRAM R M (CRAM-I); MARTIN P J (MART-I); OTTO G (OTTO-I); PALMER D A (PALM-I); SPIVEY B A (SPIV-I); THERMOTREX CORP (THER-N); MARTIN P I (MART-I)

Inventor: CRAM R M; MARTIN P J; OTTO G; PALMER D A; SPIVEY B A; MARTIN P I
Number of Countries: 019 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5435312	A	19950725	US 91708354	A	19910531	199535	B
			US 92891851	A	19920601		
			US 94232741	A	19940425		
WO 9528883	A1	19951102	WO 95US5078	A	19950424	199549	
EP 705073	A1	19960410	EP 95917669	A	19950424	199619	
			WO 95US5078	A	19950424		
JP 8508925	W	19960924	JP 95527827	A	19950424	199704	
			WO 95US5078	A	19950424		
JP 3133764	B2	20010213	JP 95527827	A	19950424	200111	
			WO 95US5078	A	19950424		

Priority Applications (No Type Date): US 94232741 A 19940425; US 91708354 A 19910531; US 92891851 A 19920601; US 94232740 A 19940425
Abstract (Basic): US 5435312 A

The appts. includes an ARB **waveform generator** (26) and eight two-channel analog to digital converters (22). The generator broadcasts acoustic **signals** into a medium (9), e.g. a human torso, from seven broadcast locations on a circle, one location at a **time**. The **signals** are at least one discrete frequency and continuous. The detector detects the broadcast **signals** at 1024 locations in a transducer ring (10). The received **signals** are compared to the broadcast **signals** and provide w.r.t. each of the locations a set of **data** set representing the phases and amplitudes of the acoustic **signals**.

A computer (30) transforms the **data** into **data** defining an azimuthal **data** set in an azimuthal mode space. The azimuthal **data** is modified to account for transducer antenna patterns is multiplied by a weighting function calculated at a large number of locations in the medium. The azimuthal modes are summed to produce a convolved image of the medium which is then deconvolved.

USE - Imaging of various human organs and appendages, e.g. abdomen, cranial cavity, neck, female breast, arteries and veins in arms and legs, etc.

Dwg.2/15

46/3,AB/27 (Item 10 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010231515
WPI Acc No: 1995-132772/199518
XRPX Acc No: N95-104455

MRI appts. using hybrid **scan** technique - has **RF** coil for emitting excitation pulse and several refocus **RF** pulses, rotates **data** collected from echo **signals** such that phases are continuous, and reconstructs image

Patent Assignee: SHIMADZU CORP (SHMA)
Inventor: AKIRAHIRO I; NAOUDO I; OSAMU K; IIJIMA N; ISHIKAWA A; KOHNO S
Number of Countries: 004 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 646807	A1	19950405	EP 94113937	A	19940906	199518	B
US 5548215	A	19960820	US 94299119	A	19940902	199639	
CN 1104883	A	19950712	CN 94116703	A	19940930	199729	
EP 646807	B1	19990303	EP 94113937	A	19940906	199913	
DE 69416765	E	19990408	DE 616765	A	19940906	199920	
			EP 94113937	A	19940906		

Priority Applications (No Type Date): JP 93269889 A 19930930
Abstract (Basic): EP 646807 A

The **MR** imaging appts. generates a uniform static field in an imaging space, and three variable strength gradient field pulses. An **RF** coil emits an excitation pulse and several refocus pulses, and detects echo **signals**. The **RF** pulses are modulated. Slice planes are selected in time with the **RF** pulses. Phase encoding gradient field pulses vary in response to the echo **signals**. Reading field pulses are generated in **time** with the echo **signals**.

Data is collected from the echo **signals**. Phase differences of echo peaks in the echo **signals** are detected with respect to a reference frequency. The **data** is rotated based on the phase differences, and then used to reconstruct a sectional image.

USE/ADVANTAGE - Suppresses image blurring without putting heavy load on control system due to image processing.

Dwg.1/6

Abstract (Equivalent): US 5548215 A

An **MR** imaging apparatus using **NMR** phenomenon, comprising:

a main magnet for generating a uniform static magnetic field in an imaging space;

a first, a second and a third gradient field coils for generating three types of gradient field pulses, said three types of gradient field pulses including slice-selecting gradient field pulses, phase-encoding gradient field pulses, and reading gradient field pulses, with magnetic strengths varying in three orthogonal directions in said imaging space;

a **RF** coil for emitting an excitation **RF** pulse and a plurality of refocus **RF** pulses and detecting echo **signals;**

RF emitting means for modulating, with a predetermined carrier frequency, and successively emitting said excitation **RF** pulse and said refocus **RF** pulses with predetermined timing through said **RF** coil, said **RF** emitting means emitting said refocus **RF** pulses while alternately switching a phase polarity thereof;

slice-selecting gradient field pulse generating means for generating said slice-selecting gradient field pulses through said first gradient field coil for selecting slice planes, in timed relationship with said excitation **RF** pulse and said refocus **RF** pulses;

phase-encoding gradient field pulse generating means for generating said phase-encoding gradient field pulses through said second gradient field coil in timed relationship with said echo **signals,** said phase-encoding gradient field pulses being varied for the respective echo **signals;**

reading gradient field pulse generating means for generating said reading gradient field pulses through said third gradient field coil in timed relationship with said echo **signals;**

data collecting means for detecting, with a predetermined frequency (reference frequency), said echo **signals** detected by said **RF** coil, and collecting **data** therefrom;

phase detecting means for determining phase differences of echo peaks in said echo **signals** with respect to said reference frequency, respectively;

rotating means for rotating said **data** collected from said echo **signals** based on said phase differences to connect phases of said echo **signals** to be continuous; and

data processing means for reconstructing a sectional image based on said **data** rotated.

Dwg.6/6

46/3,AB/28 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010121100
WPI Acc No: 1995-022351/199503
XRPX Acc No: N95-017461
Discriminating method for valid and artificial waveforms - monitoring and comparing systolic upstroke times with standard reference times to define valid pulse waveforms used to analyse pulse oximetry
Patent Assignee: NIMS INC (NIMS-N)
Inventor: INMAN D M; SACKNER M A
Number of Countries: 002 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9427492	A1	19941208	WO 94US4448	A	19940421	199503	B
AU 9469424	A	19941220	AU 9469424	A	19940421	199512	
			WO 94US4448	A	19940421		
US 5588425	A	19961231	US 9366593	A	19930521	199707	
			US 95431469	A	19950501		

Priority Applications (No Type Date): US 9366593 A 19930521; US 95431469 A 19950501

Abstract (Basic): WO 9427492 A

The method for use in pulse oximetry involves using a system for validating the pulses. A number of sensors (28-30) are attached to the patient (11) and connected to pulse oximeter (12), ECG (14), inductive plethysmograph (16) and impedance pneumograph (18) devices. A computer (20) provides for analysis and **data** recording.

The systolic upstroke times are monitored and compared with a predetermined range of upstroke times. This determines if the monitored upstroke is valid or an artifact. The predetermined values can be a standard or empirically formed from the patient.

USE/ADVANTAGE - Validating heart rate and/or R-R intervals of ECG, and discriminating between sleep and wakefulness in monitored subject. Provides confident assessment of validity of arterial oxygen saturation measurements.

Dwg.1/13

Abstract (Equivalent): US 5588425 A

A method for discriminating between artifactual and non-artifactual pulse **waveforms generated** by a pulse oximeter for validating indicated arterial oxygen saturation levels of a subject also generated by the pulse oximeter, the pulse waveforms each being defined, at least partially, by a systolic upstroke time and a diastolic time, the method comprising:

selecting a predetermined range of a first parameter indicative of a correct pulse waveform, said first parameter being selected from the group consisting of systolic upstroke times and diastolic times;

receiving from the pulse oximeter, in a first receiving step, pulse waveforms;

receiving from the pulse oximeter, in a second receiving step, **signals** indicative of the arterial oxygen saturation level of the subject;

measuring said first parameter of the received pulse waveforms, wherein said measuring step comprises measuring the systolic upstroke times corresponding to received pulse waveforms;

comparing the measured systolic upstroke times to a predetermined range of, systolic upstroke times;

rejecting as artifactual any of the pulse waveforms having a systolic upstroke time outside said predetermined range of systolic

upstroke times; and
determining the arterial oxygen saturation levels indicated by the received **signals** corresponding **temporally** to the non-rejected pulse waveforms.
Dwg.1/13

46/3,AB/29 (Item 12 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010082405
WPI Acc No: 1994-350118/199444
XRPX Acc No: N94-274717
Testing hearing using OtoAcoustic Emission measurement - using stimulus generator, loudspeaker, microphone with digital filtering and spectral analysis to automatically determine presence or error in OAE emission in measured stimulus response **signal**
Patent Assignee: WOLTER A (WOLT-I)
Inventor: WOLTER A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 4314757	A1	19941110	DE 4314757	A	19930505	199444	B

Priority Applications (No Type Date): DE 4314757 A 19930505
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4314757	A1		7	A61B-005/12	

Abstract (Basic): DE 4314757 A
The hearing test system measures active acoustic emissions of the inner ear by Oto-Acoustic-Emissions (OAE). A loudspeaker in a probe (1) provides acoustic stimulus from a **generator** (2). Various test **wave forms** are produced. A **signal** mixture is acquired by a microphone and is then conditioned for further processing by digitising.
OAE **signals** present in the **signal** mixture are obtained by filtering the **signal** mixture in the filter (4), using adaptive filtering, followed by statistical and spectral analysis and **time** separation. The **signal**-to-noise (S/N) of the mixture is enhanced and passed to an evaluation circuit(s).
USE/ADVANTAGE - Digital **signal** processing enhances performance of measurement system. Suitable for mass screening. Rapid **testing** allows short test time.
Dwg.1/2

46/3,AB/30 (Item 13 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009608695
WPI Acc No: 1993-302243/199338
Related WPI Acc No: 1995-005349
XRPX Acc No: N93-232452
Heart rate monitor for person engaged in physical exercise - generates autocorrelation **signal** of biopotential input **signal**, over **time** period, detects periodic **signal** in autocorrelation **signal** and generates heart rate **signal** corresp. to frequency of periodic **signal**
Patent Assignee: LIFE FITNESS (LIFE-N)

Inventor: ALEXANDER D J; BONNER R A; ENGLEHARDT W H; FULLER A J; MACDONALD D B; SVILANS O J
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5243993	A	19930914	US 91722800	A	19910628	199338	B

Priority Applications (No Type Date): US 91722800 A 19910628
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5243993	A		18	A61B-005/04	

Abstract (Basic): US 5243993 A

The appts for measuring heart rate includes a sensor for generating a **signal** which includes the biopotential **signal** produced by a heart. The **signal** is filtered, amplified and digitised. A microcomputer autocorrelates the digitised **signal**. A number of **signal** indication routines, **scan** the autocorrelated output for the presence of periodic **signals**.

Each for the **signal** indication routines uses different search criteria, such as peak and **waveform** detection, and **generates** a candidate heart rate. An arbitrator then selects one of the candidate heart rates according to predetermined criteria. The criteria include the value of previously selected heart rates.

USE/ADVANTAGE - Enables measurement of heart rate from person engaged in physical exercise, i.e. distinguishes between heart rate and other periodic muscular movements e.g. pedalling a bicycle.

Dwg.3/13

46/3,AB/31 (Item 14 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009578711
WPI Acc No: 1993-272257/199334
XRPX Acc No: N93-209119
Interleaved acquisition of multi-slice **NMR data** for reducing **scan** time - exciting and refocusing spins in separate slices by successive **RF** pulses, and acquiring **NMR** echo **signals** for respective slices on applying read-out gradient
Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: BISHOP J E; PLEWES D B
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5237273	A	19930817	US 91703989	A	19910522	199334	B

Priority Applications (No Type Date): US 91703989 A 19910522
Abstract (Basic): US 5237273 A

In an **NMR** system, **NMR data** from separate slices through a region of interest is acquired by applying a polarising magnetic field to the region of interest, and applying selective **RF** excitation pulses to the region of interest while applying concurrent slice-select magnetic field gradient pulses, such that the spins in a corresponding number of separate slices through the region of interest are excited.

Further, corresponding selective **RF** echo pulses are applied to the region of interest at a time TE/2 after the application of the selective **RF** excitation pulse while applying concurrent slice-select magnetic field gradient pulses. Then a phase encoding magnetic field gradient pulse is applied to the region of interest, acquiring corresponding **NMR** echo **signals** at a **time** TE after the application of the respective selective **RF** excitations pulses, and storing each acquired **NMR** echo **signal** as **data** for a different one of separate slices.

USE/ADVANTAGE - **NMR** imaging and partic. in medicine and biology, for clinical diagnostic purposes.

Dwg.7/7

46/3,AB/32 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009264343
WPI Acc No: 1992-391754/199248
XRPX Acc No: N92-298818
NMR system for acquiring multiple images in fast spin echo **scans** - stores low-order phase encoding views in separate arrays but high-order views in all **data** arrays
Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: HINKS R S
Number of Countries: 004 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 515197	A1	19921125	EP 92304638	A	19920521	199248	B
US 5168226	A	19921201	US 91703990	A	19910522	199251	

Priority Applications (No Type Date): US 91703990 A 19910522
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes

EP 515197 A1 E 12 G01R-033/56
Designated States (Regional): DE GB NL
US 5168226 A 11 G01R-033/20
Abstract (Basic): EP 515197 A

The appts. includes a transceiver for producing an **RF** excitation field, and for sensing the induced **NMR signal** from the transverse magnetisation generated by the magnetic field assembly. A pulse controlled utilises a **signal** to **generate** digital **waveforms** which control gradient coil excitation to enable phase encoding of **NMR signals**.

In operation, the fast spin echo **NMR** pulse sequence acquires sixteen **NMR** echo **signals** of which four are shown (301-304). These **signals** are produced by a 90 deg. **RF** excitation pulse (305) in the presence of a gradient pulse (306). The transverse magnetisation is refocussed by each selective 180 deg. **RF** echo pulse (307), to produce spin echo **signals** that are separately phase encoded (309-313).

ADVANTAGE - Reduces total number of views required to reconstruct multiple images. Shortens **scan** time.

Dwg. 3/6

Abstract (Equivalent): US 5168226 A

The **NMR** system includes a polarising magnetic field generator, an excitation device for generating an **RF** excitation magnetic field which produces trasverse magnetisation in spins subjected to the polarising magnetic field. A receiver senses a **NMR signal** produced by the transverse magnetisation and produces digitsed samples f the **NMR signal**. A magnetic field gradient is generated to phase encoder the **NMR signal** . A pulse controller is coupled to the excitation device gradient generator and receiver. The pulse controller is operable to conduct a **scan** in which a series of pulse sequences are conducted to acquire digitised samples of **NMR signals** which enable a number of images to be reconstructed.

A set of image array are each coupled to the receiver and each stores digitised samples of the **NMR signals** required to reconstruct an image. Each pulse sequence conducted during the **scan** produces a series of **NMR signals** that are acquired and each **signal** in the pulse sequence is separately phase encoded common high-order phase encoding **data** is used for all the images.

USE/ADVNATAGE - For acquisition of multiple images in fast spin echo **NMR scans,** partic. clinical **MR**. Reduced total number of views required to reconstruct multiple images, shortened **scan** time.

Dwg.5/6

46/3,AB/33 (Item 16 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009203732
WPI Acc No: 1992-331164/199240
XRPX Acc No: N92-252952

Spin in vowel **magnetic resonance** imaging method - excites spin in set vowel to cause spin to perform steady state free precession by applying pulse at rate of short repetition time

Patent Assignee: HITACHI LTD (HITA)
Inventor: MIYAMOTO Y; SANO K; TAKANE A; TAKEDA R
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week

US 5148109	A	19920915	US 90579531	A	19900910	199240	B

Priority Applications (No Type Date): JP 89235678 A 19890913
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5148109	A		6	G01R-033/20	

Abstract (Basic): US 5148109 A

The method for imaging a brain surface structure utilising a **MRI** system, comprises the steps of: selecting a pixel to be imaged at a brain surface of the brain surface structure. A time-reversed fee indution decay (**FID**) **signal** is acquired which corresponds to an enhanced spin-spin relaxation time (T2) from the pixel to be imaged by using a gradient echo method; and the brain surface structure is imaged in accordance with the **signal**.

The gradient echo method is performed by applying **RF** pulses for excitation to be cerebrospinal fluid on the pixel to be imaged at a repetition time (TR) which is substantially shorter than the spin-spin relaxation time (T2) and a spin-lattice relaxation time (T1) of the cerebrospinal fluid. A steady state free precession (SSFP) in the pixel is established so as to enable the **time**-reversed **FID** **signal**.

USE/ADVANTAGE - Brain **scanning**. Can obtain image within short period of time.

Dwg.1/4

46/3,AB/34 (Item 17 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008791330
WPI Acc No: 1991-295345/199140
XRPX Acc No: N91-226263

Noninvasive myocardial ischaemia detection system for diagnosis - uses chest mounted inertial detector to monitor cardiac induced compression waves before and after exercise and during recovery

Patent Assignee: SEISMED INSTR INC (SEIS-N)
Inventor: SALERNO D M; ZANETTI J M
Number of Countries: 018 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9113587	A	19910919				199140	B
AU 9175808	A	19911010				199201	
US 5159932	A	19921103	US 90495262	A	19900316	199247	
			US 91690635	A	19910424		
			US 92833630	A	19920207		
EP 520015	A1	19921230	EP 91906745	A	19910314	199301	
			WO 91US1712	A	19910314		
JP 5505954	W	19930902	JP 91507234	A	19910314	199340	
			WO 91US1712	A	19910314		

Priority Applications (No Type Date): US 90495262 A 19900316; US 91690635 A 19910424; US 92833630 A 19920207

Abstract (Basic): WO 9113587 A

A plate (24) is adhesively fixed to a patient's chest with the compression wave transducer (20) mounted on it. The transducer comprises an accelerometer with a wide bandwidth, flat frequency response and high sensitivity. The detected **signals** are fed to a conditioning module (28) for amplifying, buffering and digitising. The digital output is connected to a microprocessor (or PC) for processing and display (32).

Segments of compression wave **data**, which correspond to

equivalent portions of the underlying cardiac cycle, are averaged and presented for diagnostic display.

USE/ADVANTAGE - Non-invasive technique for coronary artery disease screening.

Dwg.1/8

Abstract (Equivalent): US 5159932 A

The appts. displays a motion **signal**, chearacterising ventricular wall motion of a patient's heart, from cardiac induced compression waves detected at the surface of the patient's body, to a diagnostician. The appts. comprises a compression wave monitor responsive to compression waves at the surface of the patient's body, for generating a number of compression wave **signals** corresp. to the ventricular wall motion.

A selector detects the systolic time interval of normal sinus beats of the patient's heart, and generates a **data** collection window interval during such systolic **time** interval. The compression wave **signals** collected during the **data** collection window intervals are averaged for **generating** a composite **wave form**. A display provides a representation of the composite waveform to the diagnostician.

USE/ADVANTAGE - For non-invasively monitoring motion of patient's heart, to detect and display ischemia induced variations in heart's motion which indicate coronary artery disease.

Dwg.1/8

46/3,AB/35 (Item 18 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008454825
WPI Acc No: 1990-341825/199045
XRPX Acc No: N90-261258

Method for compensation of eddy current effects in device - irradiated with **RF** pulses to produce **Mr signals** which are Fourier transformed, stored and correction coefficient calculated

Patent Assignee: SIEMENS AG (SIEI); SPECTROSCOPY IMAGIN (SPEC-N)
Inventor: EGLOFF H
Number of Countries: 008 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4965521	A	19901023	US 89392872	A	19890811	199045	B
EP 412394	A	19910213	EP 90114607	A	19900813	199107	
CA 2021877	A	19910212				199117	
JP 3088309	A	19910412	JP 90213565	A	19900810	199121	

Priority Applications (No Type Date): US 89392872 A 19890811
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 412394	A				

Designated States (Regional): CH DE FR GB LI

Abstract (Basic): US 4965521 A

An **MR**-active sample is positioned along a given coordinate axis within a magnetic field of the gradient coil and away from its isocenter. A number of time-sequential gradient coil pulses are applied to the gradient coil for generating a corresp. number of gradient magnetic field pulses. The sample is irradiated with an **RF** excitation pulse a given time delay which is increased following application of each of the gradient coil pulses, so as to generate a number of **time**-sequential **MR signals**.

Each of the **MR signals** are measured, Fourier

transformed and stored as **data**, the **data** representative of the eddy current magnetic field. Correction coefficients are calculated for compensating the magnetic field of the gradient coil w.r.t. the eddy current magnetic field using peak frequency shift **data** determined from the stored **data**. The calculated correction coefficients are applied so as to generate a pre-distorted gradient coil pulse which will compensate for the affect of the eddy current magnetic field upon the gradient coil magnetic field.

USE - For the compensation of an eddy current magnetic field in the magnetic field of a pulsed gradient coil in an **MR scanning** appts. (17pp Dwg.No.4/13(

46/3,AB/36 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008442410
WPI Acc No: 1990-329410/199044
XRPX Acc No: N90-252172

Digital **signal** generator using digital mixer - has stored complex digital patterns and sampled exponential sinusoid which are multiplied to produce output

Patent Assignee: HEWLETT-PACKARD CO (HEWP)
Inventor: ADCOCK J L; SHOUP D E
Number of Countries: 005 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 395423	A	19901031	EP 90304567	A	19900426	199044	B
JP 3001705	A	19910108				199107	
US 5001660	A	19910319	US 89345264	A	19890427	199114	
EP 395423	B1	19970226	EP 90304567	A	19900426	199714	
DE 69029974	E	19970403	DE 629974	A	19900426	199719	
			EP 90304567	A	19900426		

Priority Applications (No Type Date): US 89345264 A 19890427

Abstract (Basic): EP 395423 A

The appts. has a digital multiplier (20) supplied with two complex digital inputs whose output is converted to analogue form (22). The first is a exponential sinusoid stored in one memory (18) and the second is one of a set of **base band** excitation waveforms stored in another memory (14).

The sequence of operands from the first soruce is selected from memory by a phase counter indexing by a term delta theta, chosen to provide samples of a desired frequency. If the index falls between two stored values interpolation is used.

USE/ADVANTAGE - Laboratory instruments e.g. network and spectiams analysers. High accuracy **signal** source.

Dwg.1/3

Abstract (Equivalent): EP 395423 B

A method of **generating** a **waveform**, the method comprising the steps of providing a first digital data stream representing a first **signal**, and a second digital data stream representing a second **signal**, multiplying the first and second data streams in a digital multiplier (20), to provide an output and converting the output from the digital multiplier (20) into the analog of said waveform, characterised by:

providing, as the first data stream, a first sequence of complex numbers, having real and imaginary data points which together represent sinusoid data points;

selecting, from a random access memory (14), as the second data stream, a second sequence of real or complex numbers;

09/909,932 9/5/02

46/3,AB/36 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008442410
WPI Acc No: 1990-329410/199044
XRPX Acc No: N90-252172
Digital **signal** generator using digital mixer - has stored complex digital patterns and sampled exponential sinusoid which are multiplied to produce output
Patent Assignee: HEWLETT-PACKARD CO (HEWP)
Inventor: ADCOCK J L; SHOUP D E
Number of Countries: 005 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 395423	A	19901031	EP 90304567	A	19900426	199044	B
JP 3001705	A	19910108				199107	
US 5001660	A	19910319	US 89345264	A	19890427	199114	
EP 395423	B1	19970226	EP 90304567	A	19900426	199714	
DE 69029974	E	19970403	DE 629974	A	19900426	199719	
			EP 90304567	A	19900426		

Priority Applications (No Type Date): US 89345264 A 19890427
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 395423	A				
Designated States (Regional): DE FR GB					
EP 395423	B1	E	12	H03H-017/02	
Designated States (Regional): DE FR GB					
DE 69029974	E			H03H-017/02	Based on patent EP 395423

Abstract (Basic): EP 395423 A
The appts. has a digital multiplier (20) supplied with two complex digital inputs whose output is converted to analogue form (22). The first is a exponential sinusoid stored in one memory (18) and the second is one of a set of **base band** excitation waveforms stored in another memory (14).

The sequence of operands from the first soruce is selected from memory by a phase counter indexing by a term delta theta, chosen to provide samples of a desired frequency. If the index falls between two stored values interpolation is used.

USE/ADVANTAGE - Laboratory instruments e.g. network and spectiams analysers. High accuracy **signal** source.

Dwg.1/3

Abstract (Equivalent): EP 395423 B
A method of **generating** a **waveform**, the method comprising the steps of providing a first digital data stream representing a first **signal**, and a second digital data stream representing a second **signal**, multiplying the first and second data streams in a digital multiplier (20), to provide an output and converting the output from the digital multiplier (20) into the analog

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L28	L27 and L6	4	L28
L27	L3 and L26	281	L27
L26	waveform or (wave adj form)	35407	L26
L25	L22 or L23	11	L25
L24	L22 or l23	11	L24
L23	(l7 or L2) and (L20 or L21)	8	L23
L22	L21 and L20	4	L22
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L20	L6 and L19	10	L20
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L3	nmr or mri or mr or (magnetic adj resonance) or (nuclear adj magnetic)	21758	L3
L2	L1 and (temporal$2 or time) near2 (chang$3 or vary$3 or varies or varied)	16	L2
L1	6230039 6287980 6397661 4439733 4982162 5652514 5770943 5821751 5856867 4307343 4573014 4616182 RE32712 4814710 4996480 5221899 5245282 5252923 5254949 5309103 5539367 5568110 5617028 5650722 5721523 5754048 5792054 4441502 4486708 4577152 4579121 4818942 4857843 4875012 4896112 4901021 4910460 4916395 4940941 4995394 5185573 5189366 5215642 5221900 5252922 5285161 5309099 5318561 5327088 5341099	75	L1

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1. Document ID: US 5309099 A

L31: Entry 1 of 10 File: DWPI May 3, 1994

DERWENT-ACC-NO: 1994-144448
DERWENT-WEEK: 199417

TITLE: Flow velocity measurement method using MRI - determining real time spatially localised velocity distribution in region such as blood vessel

INVENTOR: HU, B S; IRARRAZABAL, P ; PAULY, J

PATENT-ASSIGNEE:

ASSIGNEE	CODE
UNIV LELAND STANFORD JUNIOR	STRD

PRIORITY-DATA: 1992US-0926982 (August 7, 1992)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 5309099 A	May 3, 1994		007	G01V003/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 5309099A	August 7, 1992	1992US-0926982	

INT-CL (IPC): G01V 3/00

ABSTRACTED-PUB-NO: US 5309099A
BASIC-ABSTRACT:

Real-time spatially localized velocity distribution is measured using magnetic resonance techniques by first exciting a region of interest using an RF excitation pulse simultaneously with gradient pulses along two orthogonal axes. A cyclical read-out gradient is then applied along a read-out axis and a magnetic resonance signal is continuously sampled while the read-out gradient is applied. The excitation and read-out is repeated at time intervals to obtain time varying spatially localized velocities within the region of interest.

THe gradients and RF pulse provide a Gaussian cyclical excitation which can be axially aligned with the blood vessel. The gradients are chosen to travel a trajectory in k space and the RF pulse is the weighted 2D Fourier Transform of the desired excitation profile.

USE/ADVANTAGE - Medical to obtain velocity information of blood. Velocity distribution, not single value, is found for every 3D voxel in real time, thus overcoming the need for small voxels.

CHOSEN-DRAWING: Dwg.3/5

TITLE-TERMS: FLOW VELOCITY MEASURE METHOD MRI DETERMINE REAL TIME SPACE LOCALISE VELOCITY DISTRIBUTE REGION BLOOD VESSEL

ADDL-INDEXING-TERMS:
FFT

DERWENT-CLASS: S02 S03 S05 T01

EPI-CODES: S02-C01B4; S03-E07A; S05-D02B2; T01-J04B1; T01-J10B;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1994-113767

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Clip Img | Image

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☐ 2. Document ID: DE 4111508 A DE 4111508 C2 US 5309103 A

L31: Entry 2 of 10 File: DWPI Oct 15, 1992

DERWENT-ACC-NO: 1992-350440
DERWENT-WEEK: 199243

TITLE: Magnetic resonance, simulator esp. for tomography - has high frequency and gradient field systems forming hollow bodies in simple, compact, easily assembled system

INVENTOR: FRIEDBURG, H

PATENT-ASSIGNEE:

ASSIGNEE	CODE
BRUKER MEDIZINTECH GMBH	BRUKN

PRIORITY-DATA: 1991DE-4111508 (April 9, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 4111508 A	October 15, 1992		008	G01R033/34
DE 4111508 C2	July 14, 1994		008	G01R033/30
US 5309103 A	May 3, 1994		008	G01R033/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 4111508A	April 9, 1991	1991DE-4111508	
DE 4111508C2	April 9, 1991	1991DE-4111508	
US 5309103A	April 9, 1992	1992US-0865481	

INT-CL (IPC): G01R 33/30; G01R 33/32; G01R 33/34; G01R 33/40

ABSTRACTED-PUB-NO: DE 4111508A
BASIC-ABSTRACT:

The arrangement contains a specimen head (10). The head sens and/or receives a high frequency magnetic field of defined frequency and generates a magnetic field in an internal chamber (13) of defined inhomogeneity and which varies according to a defined program. Measured resonance signals are passed to a signal processor. Elements of the high frequency transmission/reception and field generating coil systems are combined in hollow units (20) with coils (33) inside and conductive outer walls (21) forming the high frequency system.

The wall thickness (d) exceeds the measurement frequency penetration depth yet is small enough to damp the eddy currents caused by the varying field to allow the time varying field to penetrate it.

USE/ADVANTAGE - Esp. for whole body tomography, arrangement combines gradient and high frequency field systems in simple, compact, easily assmebled system without unwanted coupling.
ABSTRACTED-PUB-NO:

US 5309103A
EQUIVALENT-ABSTRACTS:

A probe-head (10) incorporates a high frequency system for transmitting and/or detecting a high frequency magnetic field of a predetermined measuring frequency. The probe-head (10) has a coil system for producing a magnetic field of predetermined inhomogeneity inside an inner space (13) of the probe-head (10) varying according to a predetermined time program. Elements of the high frequency system are combined with elements of the coil system into common construction units. A signal processor measures resonance signals.

The construction units are in the form of hollow bodies (20). Coils (33) of the coil system are located inside the hollow bodies (20). Conductive outer walls (21) of the hollow bodies (20) form the high frequency system. The walls (21) exhibit a thickness (d) which is greater than the penetration depth of the measuring frequency but small enough to damp eddy currents in the wall (21) produced by the time-varying inhomogeneous magnetic field to such an extent that the time-variant inhomogeneous magnetic field can penetrate the wall (21).

USE/ADVANTAGE - Measures magnetic resonance in samples, in particular in relation to whole body tomography. Easy to assemble. Allows transmissio n of HF AC with little electrical loss, via electrically-conductive wall or coating of hollow body.

DE 4111508C

An arrangement for stimulating and/or measuring magnetic resonance in specimens has a specimen head (10) with a system for transmitting and/or receiving a h.f. magnetic field of defined frequency and a coil system for generating a magnetic field of defined inhomogeneity which is varied according to a defined time program in an inner chamber (13) of the specimen head. Elements of the coil system are combined to form common components. The measured resonance signals are evaluated by a signal processor unit.

The common components are hollow bodies (20) with conductive outer walls and coils (33) of the coil system arranged inside the bodies. The wall thickness (d) is greater than penetration depth of the measurement frequency, but small enough to damp the eddy currents induced in the walls by the time varying field sufficiently to allow the time varying field to penetrate through the walls.

USE/ADVANTAGE - Esp. for whole body tomography. Developed to contain simple, easily mounted and compact common component for gradient coils and h.f. alternating field generation system which prevents unwanted coupling.

CHOSEN-DRAWING: Dwg.3/3 Dwg.3/3 Dwg.3/3

TITLE-TERMS: MAGNETIC RESONANCE SIMULATE TOMOGRAPHY HIGH FREQUENCY GRADIENT FIELD SYSTEM FORMING HOLLOW BODY SIMPLE COMPACT EASY ASSEMBLE SYSTEM

DERWENT-CLASS: S01 S03 S05 V02

EPI-CODES: S01-E02A; S01-H05; S03-E07; S05-D02B1; V02-F01G;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1992-267148

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3. Document ID: EP 412819 A US 4995394 A

L31: Entry 3 of 10 File: DWPI Feb 13, 1991

DERWENT-ACC-NO: 1991-045939
DERWENT-WEEK: 199107

TITLE: NMR imaging of cardiac wall and/or valve motion - has NMR pulse gating and envelope modulation balancing for pre and RF power amplifier and voltages for gradient power supplies

INVENTOR: CLINE, H E; HARDY, C J

PATENT-ASSIGNEE:

ASSIGNEE	CODE
GENERAL ELECTRIC CO	GENE

PRIORITY-DATA: 1989US-0392315 (August 11, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 412819 A	February 13, 1991		000	
US 4995394 A	February 26, 1991		000	

DESIGNATED-STATES: DE FR GB NL

CITED-DOCUMENTS:6.Jnl.Ref; A3...9130 ; NoSR.Pub

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 412819A	August 9, 1990	1990EP-0308774	
US 4995394A	August 11, 1989	1989US-0392315	

INT-CL (IPC): A61B 5/05; G01R 33/56

ABSTRACTED-PUB-NO: EP 412819A
BASIC-ABSTRACT:

A continuous image recording motion of a portion of a sample, is provided by first NMR exciting, through use of a rotating-gradient (ro) pulse signal, a relatively narrow cylindrical region, typically with diameter less than 1 inch, or magnetisation intersecting the sample to be imaged and then acquiring the NMR response signal thus excited, in the presence of a readout gradient oriented along the length of the cylindrical excitation beam and establishing position on it. A Fourier transformation of the acquired data allows display of a real-time record of the profile of the sample along the axis of the cylindrical probe beam. The cylinder-beam axis can be oriented in an arbitrary direction by proper mixing of the excitation and readout gradient fields; use of three orthogonal gradients in a Cartesian coordinate system is presently preferred.

Spatial offsetting of the cylindrical beam, from the centre of the static magnetic field of the NMR imaging system, to any specific location within the system's imaging volume, can be obtained by frequency modulation of the ro pulse RF waveform.

ADVANTAGE - provides rapid cardiac profile.
ABSTRACTED-PUB-NO:

US 4995394A
EQUIVALENT-ABSTRACTS:

The method provides a nuclear-magnetic-resonance (NMR) image of movement of a selected portion of a sample, relative to a predetermined center location at the origin of a set of axes defining an imaging volume. It involves immersing the sample in a static magnetic field formed in the imaging volume.

Soln. magnetisation of nuclei are excited in a region of the sample defined by a relatively narrow elongated probe beam. The probe beam is moved to extend through the selected sample portion. A NMR response signal is acquired from the excited region, in the presence of a readout magnetic field gradient oriented along the probe beam and with a magnitude establishing the location of the selected portion. The acquired NMR response signal is displayed as a profile of the sample alon the beam versus ti

CHOSEN-DRAWING: Dwg.1/4

TITLE-TERMS: NMR IMAGE CARDIAC WALL VALVE MOTION NMR PULSE GATE ENVELOPE MODULATE BALANCE PRE RF POWER AMPLIFY VOLTAGE GRADIENT POWER SUPPLY

DERWENT-CLASS: P31 S01 S03 S05

EPI-CODES: S01-E; S01-H05; S03-E07; S05-D02X;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1991-035782

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Clip Img | Image

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4. Document ID: WO 9100529 A DE 69030002 E GB 2234594 A EP 478632 A JP 04505867 W US 5254949 A GB 2234594 B EP 478632 B1

L31: Entry 4 of 10 File: DWPI Jan 10, 1991

DERWENT-ACC-NO: 1991-036869
DERWENT-WEEK: 199719

TITLE: Nuclear magnetic resonance method for obtaining imaging information - using static magnetic field superimposed with time varying sinusoid magnetic gradient field

INVENTOR: MCDONALD, P J; TOKARCZUK, P ; TOKARCZUK, P F ; TOKAECUZUK, P F

PATENT-ASSIGNEE:

ASSIGNEE	CODE
BRITISH TECHNOLOGY GROUP LTD	BRTEN
NAT RES DEV CORPGY GROUP LTD	NATR

PRIORITY-DATA: 1989GB-0014467 (June 23, 1989), 1990GB-0014011 (June 22, 1990)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9100529 A	January 10, 1991		000	
DE 69030002 E	April 3, 1997		000	G01R033/48
GB 2234594 A	February 6, 1991		000	
EP 478632 A	April 8, 1992		011	
JP 04505867 W	October 15, 1992		005	A61B005/055
US 5254949 A	October 19, 1993		006	G01R033/20
GB 2234594 B	March 16, 1994		000	G01R033/48
EP 478632 B1	February 26, 1997	E	009	G01R033/48

DESIGNATED-STATES: JP US AT BE CH DE DK ES FR GB IT LU NL SE CH DE FR GB LI NL CH DE FR GB LI NL

CITED-DOCUMENTS:4.Jnl.Ref; EP 259998 ; EP 26265

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE69030002E	June 22, 1990	1990DE-0630002	
DE69030002E	June 22, 1990	1990EP-0909470	
DE69030002E	June 22, 1990	1990WO-GB00967	
DE69030002E		EP 478632	Based on
DE69030002E		WO 9100529	Based on
GB 2234594A	June 22, 1990	1990GB-0014011	
EP 478632A	June 22, 1990	1990EP-0909470	
EP 478632A		WO 9100529	Based on
JP04505867W	June 22, 1990	1990JP-0508950	
JP04505867W	June 22, 1990	1990WO-GB00967	
JP04505867W		WO 9100529	Based on
US 5254949A	June 22, 1990	1990WO-GB00967	
US 5254949A	December 11, 1991	1991US-0781206	
US 5254949A		WO 9100529	Based on
GB 2234594B	June 22, 1990	1990GB-0014011	
EP 478632B1	June 22, 1990	1990EP-0909470	
EP 478632B1	June 22, 1990	1990WO-GB00967	
EP 478632B1		WO 9100529	Based on

INT-CL (IPC): A61 B 5/055; G01 R 33/20; G01 R 33/48

ABSTRACTED-PUB-NO: EP 478632B
BASIC-ABSTRACT:

The method for obtaining NMR imaging information from a solid object consists of subjecting the object to a static magnetic field, applying a gradient field varying sinusoidally in amplitude about a zero value; and then applying a repetitive sequence of narrow 90 degrees radio frequency pulses at instants when the gradient field has zero value. The magnitude, duration and successive pulses of the sequence have relative phase quadrature such that excited nuclei in the object precess with accumulated phase in each sequence.

The pulses of the sequence are applied with equal inter pulse spacing and the pulses of said sequence have a fixed time period T between successive pulses; such sequence also comprises firstly a prepn. pulse followed after a cycle time of T by a repeated cycle of six pulses of cycle 6T; imaging information relating to the object can be built by averaging pulse sequence samples and taking their Fourier Transforms and repeating the process with different orientations of gradient direction of the gradient field relative to the object.

ADVANTAGE - Radio frequency power requirement reduced, chemical shift broadening removed, mistuning and magnet inhomogeneities prevented.
ABSTRACTED-PUB-NO:

GB 2234594B
EQUIVALENT-ABSTRACTS:

A method of obtaining NMR imaging information from a solid object comprising subjecting the object to a static magnetic field, applying a gradient magnetic field which varies sinusoidally in amplitude about a zero value, applying an initial radio frequency preparation pulse; applying a repetitive sequence of radio frequency pulses at instants around the zero value of the said gradient field each of such frequency, magnitude and duration and successive pulses of the sequence being of such relative rf phase, that selected nuclei in the object precess with accumulated phase in each sequence, and measuring the resulting NMR signal from the object; characterised in that the preparation pulse and the sequence of pulses each comprise 90 deg. rf pulses, the rf phases of which are in relative phase quadrature with each other and are according to the following pattern:

90-y-tau-(90-x-tau-90-y-tau-90-x-tau-90-y-tau-90-x-tau-)n

where -y and -x indicate rf relative phase quadrature, tau is a predetermined time interval and n is an integer equal to the number of repetitions of the sequence.

A method of obtaining NMR imaging information from a solid object comprising subjecting the object to a static magnetic field, applying a gradient magnetic field which varies sinusoidally in amplitude about a zero value, applying a repetitive sequence of radio frequency pulses at instants around the zero value of the said gradient field each of such frequency, magnitude and duration and successive pulses of the sequence being of such relative rf phase, that selected nuclei in the object precess with accumulated phase in each sequence, and measuring the resulting NMR signal from the object.

US 5254949A

The method comprises steps of subjecting the object to a static magnetic field, applying a gradient magnetic field which varies sinusoidally in amplitude about a zero value, applying a repetitive sequence of radio frequency pulses only at times of zero value of the gradient field each having a frequency, magnitude and duration and successive pulses of the sequence being of such relative rf phase, that selected nuclei in the object precess with accumulated phase in each sequence, and measuring the resulting NMR signal from the object.

The sequence of radio frequency pulses is such that the pulses of the sequence are separated by constant inter pulse window lengths equal to half the magnetic gradient field cycle time.

A sinusoidal offset magnetic field of spatially uniform amplitude is superimposed on the sinusoidally time-varying gradient magnetic field to shift spikes in the measured signal after Fourier transformation caused by rf phase errors away from areas of interest.

ADVANTAGE - Requirements of rf power are reduced.

WO 9100529A

CHOSEN-DRAWING: Dwg.1/3 Dwg.1/3 Dwg.3/3

TITLE-TERMS: NUCLEAR MAGNETIC RESONANCE METHOD OBTAIN IMAGE INFORMATION STATIC MAGNETIC FIELD SUPERIMPOSED TIME VARY SINUS MAGNETIC GRADIENT FIELD

DERWENT-CLASS: P31 S01 S03

EPI-CODES: S01-E; S01-H05; S03-E07;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1991-028540

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Clip Img | Image

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5. Document ID: DE 69029091 E WO 9100514 A GB 2234595 A EP 479926 A JP 05504490 W GB 2234595 B US 5252923 A EP 479926 B1

L31: Entry 5 of 10 File: DWPI Dec 12, 1996

DERWENT-ACC-NO: 1991-036856
DERWENT-WEEK: 199704
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TITLE: Nuclear magnetic resonance imaging esp. for solid objects - applying selective excitations pulse combined with static and time-varying magnetic gradient fields producing free induction echoes

INVENTOR: COTTRELL, S P; HALSE, M ; STRANGE, J ; HALSE, M R ; STRANGE, J H

PATENT-ASSIGNEE:

ASSIGNEE	CODE
BRITISH TECHNOLOGY GROUP LTD	BRTEN
BRITISH TECHNOLOGY GROUP PLC	BRTEN
NAT RES DEV CORPGY GROUP PLC	NATR

PRIORITY-DATA: 1989GB-0015090 (June 30, 1989), 1990GB-0014500 (June 29, 1990)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 69029091 E	December 12, 1996		000	G01N024/08
WO 9100514 A	January 10, 1991		000	
GB 2234595 A	February 6, 1991		000	
EP 479926 A	April 15, 1992		005	
JP 05504490 W	July 15, 1993		000	A61B005/055
GB 2234595 B	October 20, 1993		000	G01R033/48
US 5252923 A	October 12, 1993		004	G01R033/20
EP 479926 B1	November 6, 1996	E	005	G01N024/08

DESIGNATED-STATES: CH DE FR GB LI NL

CITED-DOCUMENTS:EP 256779; EP 301396 ; US 4833411

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE69029091E	June 29, 1990	1990DE-0629091	
DE69029091E	June 29, 1990	1990EP-0917801	
DE69029091E	June 29, 1990	1990WO-GB01007	
DE69029091E		EP 479926	Based on
DE69029091E		WO 9100514	Based on
GB 2234595A	June 29, 1990	1990GB-0014500	
EP 479926A	June 29, 1990	1990EP-0917801	
EP 479926A		WO 9100514	Based on
JP05504490W	June 29, 1990	1990JP-0509424	
JP05504490W	June 29, 1990	1990WO-GB01007	
JP05504490W		WO 9100514	Based on
GB 2234595B	June 29, 1990	1990GB-0014500	
US 5252923A	June 29, 1990	1990WO-GB01007	
US 5252923A	December 27, 1991	1991US-0781135	
US 5252923A		WO 9100514	Based on
EP 479926B1	June 29, 1990	1990EP-0917801	
EP 479926B1	June 29, 1990	1990WO-GB01007	
EP 479926B1		WO 9100514	Based on

INT-CL (IPC): A61 B 5/055; G01 N 24/08; G01 R 33/20; G01 R 33/48

ABSTRACTED-PUB-NO: EP 479926B
BASIC-ABSTRACT:

NMR imaging information may be obtd. from a solid object by subjecting it to a static magnetic field, together with a sinusoidally time-varying magnetic gradient field (G). A 90 deg. RF selective excitation pulse (P) is applied at about the time that the varying field is zero.

The subsequent free induction echo signals (E) are then detected and analysed. The echo may be refreshed by applying additional rf. pulses.

ADVANTAGE - Method overcomes difficulties of detection due to rapid field decay rates, combined with equipment dead time and reduced power requirements.
ABSTRACTED-PUB-NO:

WO 9100514A
EQUIVALENT-ABSTRACTS:

A method of obtaining NMR imaging information from a solid object comprising subjecting an object to a static magnetic field, applying a single 90 degree rf excitation pulse to the object in the presence of a sinusoidally varying magnetic gradient field so that gradient echoes of the free induction signal are formed by successive reversals of the gradient field, and detecting the echo signals so formed.

GB 2234595B

A method for obtaining NMR imaging information from a solid object comprising subjecting an object to a static magnetic field, applying a single 90 deg. RF excitation pulse to the object in the presence of a sinusoidally varying magnetic gradient field so that gradient echoes of the free induction signal are formed by successive reversals of the gradient field, and detecting the echo signals so formed.

US 5252923A

To derive NMR imaging information, an object is subjected to a static magnetic field and a sinusoidally time-varying magnetic gradient field (G). A 90 degree rf selective pulse (P) is applied around the time the gradient field (G) is zero and the subsequent free induction echoes (E) are detected and decoded.

Additional non-selective pulses may be inserted at the times of echo peaks to refresh the echo signals. Additionally, to obtain two-dimensional information, the gradient direction of the magnetic gradient field may be changed in successive cycles of the sinusoidal field. The rf phase of the additional pulses are pref. in quadrature to the rf phase of the excitation pulse.

CHOSEN-DRAWING: Dwg.1/1 Dwg.1/1 Dwg.1/1

TITLE-TERMS: NUCLEAR MAGNETIC RESONANCE IMAGE SOLID OBJECT APPLY SELECT EXCITATION PULSE COMBINATION STATIC TIME VARY MAGNETIC GRADIENT FIELD PRODUCE FREE INDUCTION ECHO

DERWENT-CLASS: P31 S01 S03

EPI-CODES: S01-E; S01-H05; S03-E07;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1991-028527

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC
Draw Desc | Clip Img | Image

6. Document ID: US 4982162 A

L31: Entry 6 of 10 File: DWPI Jan 1, 1991

DERWENT-ACC-NO: 1991-029462
DERWENT-WEEK: 199104

TITLE: Mri signal recovering method from time varying gradient - converting acquired data into digital form and processing it with least squares estimator weighting matrix prior to fourier transformation

INVENTOR: ZAKHOR, A

PATENT-ASSIGNEE:

ASSIGNEE	CODE
ADVANCED NMR SYSTEMS INC	ADNMN

PRIORITY-DATA: 1989US-0379955 (July 14, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 4982162 A	January 1, 1991		000	

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 4982162A	July 14, 1989	1989US-0379955	

INT-CL (IPC): G01R 33/54

ABSTRACTED-PUB-NO: US 4982162A
BASIC-ABSTRACT:

The method involves recovering MRI signals resulting from the application of time varying gradients. The raw MRI signal is demodulated, low pass filtered, and digitized using an A/D converter sampling linearly at the Ny-quist rate. The samples from the A/D converter are compiled into a vector, which is multiplied by a least squares estimator matrix, (H.H)-H. is a matrix whose mkth element, in the case of a sinusoidal gradient, by hmk=e-jn hmk = e to power (-jpi) hmk=e to power-jpi(k-N/2) Cos (CPC M/PN).

This multiplication is repeated for each vector of samples from the A/D converter. The vectors resulting from the multiplication are accumulated to form the columns of a matrix, the rows of which are Fourier transformed to obtain the MRI image.

ADVANTAGE - Obtains optimous filtering of waveform.

CHOSEN-DRAWING: Dwg.1/3

TITLE-TERMS: MRI SIGNAL RECOVER METHOD TIME VARY GRADIENT CONVERT ACQUIRE DATA DIGITAL FORM PROCESS SQUARE ESTIMATE WEIGHT MATRIX PRIOR FOURIER TRANSFORM

DERWENT-CLASS: S03 S05

EPI-CODES: S03-E07; S05-D02X;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1991-022670

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC
Draw Desc | Clip Img | Image

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7. Document ID: US 4940941 A

L31: Entry 7 of 10 File: DWPI Jul 10, 1990

DERWENT-ACC-NO: 1990-231298
DERWENT-WEEK: 199030

TITLE: High speed magnetic resonance imaging technique - by subjecting object to static magnetic field, applying RF pulse, encoding sequence, second RF pulse, read-out samples output

INVENTOR: RZEDZIAN, R R

PATENT-ASSIGNEE:

ASSIGNEE	CODE
ADV NMR SYSTEMS INC	ADNMN

PRIORITY-DATA: 1989US-0331806 (April 3, 1989), 1986US-0937529 (December 3, 1986), 1987US-0109091 (October 16, 1987)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 4940941 A	July 10, 1990		000	

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 4940941A	April 3, 1989	1989US-0331806	

INT-CL (IPC): G01R 33/20

ABSTRACTED-PUB-NO: US 4940941A
BASIC-ABSTRACT:

The object to be imaged is placed in a high static magnetic field. Nuclear spins are excited in an image area by applying a pulse of

radio frequency magnetic field. Following an encoding pulse sequence and rephasing of the nuclear spins by the application of a 180 degree radio frequency pulse, mutually orthogonal phase-encoding and readout gradients are alternatively applied in the image plane to effect a traversal through spatial frequency domain (k-space).

The readout gradient is applied as a continuous sinusoidal wave, resulting in a slight overlap between the phase-encoding and readout gradients. If phase errors vary slowly in time, only a partial k-space trajectory is required. Chemical shift is eliminated either by the application of a suppression pulse of RF field or by tailoring the frequency spectrum of the rephasing pulse so as to preclude rephasing of one or other of the chemical moieties.

ADVANTAGE - Speeds faster than about 100 milliseconds.
ABSTRACTED-PUB-NO:

DE 3781869G
EQUIVALENT-ABSTRACTS:

The object to be imaged is placed in a high static magnetic field. Nuclear spins are excited in an image area in a selected plane of the object by superimposing a slice-selection gradient along an axis and so asa pulse of radio frequency magnetic field. Following an encoding pulse sequence and rephasing of the nuclear spins by the application of a 180 degree radio frequency pulse, mutually orthogonal phase-encoding and readout gradients are alternately applied in the image plane to effect a traversal through spatial frequency domain (k-space). If phase errors vary slowly in time, only a partial K-space trajectory is required. Chemical shift is eliminated either b the application of a su

EP 270320B

A method of deriving image information at high speed from an object using nuclear magnetic resonance signals, comprising the steps of: (a) subjecting an object to a continuous static magnetic field along an axis, said magnetic field having a strength between about 0.5 and 5 Tesla; (b) exciting nuclear spins in a selected plane of the object by applying to the object a first radio frequency pulse together with a first magnetic field gradient perpendicular to said plane comprising a slice selection gradient, such that free induction decay signals are produced by said excited nuclear spins in said plane; (c) applying to the object an encoding sequence comprising a second magnetic field gradient of a predetermined magnitude having a direction parallel to said plane together withh a third magnetic field gradient of a predetermined magnitude having a direction also parallel to said plane and perpendicular to said second gradient; (d) applying to said object a further slice selection gradient such that the total dephasing effect of the slice selection gradient applied in step (b) is as close to zero as possible; (e) applying a sequence comprising a series of alternate applications to the object, respectively in time, of said second magnetic field gradient defining phase encoding gradients and said third magnetic field gradient defining readout gradients, said sequence of second and third magnetic field gradients being completed within a period of time less than about 100 milliseconds, resulting in a trajectory through a predetermined portion of k-space based upon

said predetermined magnitudes of said second and third magnetic fields applied to the object in said encoding sequence of step (c); and (f) acquiring data to form a magnetic resonance image by sampling nuclear magnetic resonance signals output from said object during the application of said readout gradient to form a series of data values in the time domain, formatting said time domain data into modified data estimating the spatial frequencies of the object and transforming said modified data into spatial domain data for presentation as an image of the object.

CHOSEN-DRAWING: Dwg.2/5 Dwg.1/11

TITLE-TERMS: HIGH SPEED MAGNETIC RESONANCE IMAGE TECHNIQUE SUBJECT OBJECT STATIC MAGNETIC FIELD APPLY RF PULSE ENCODE SEQUENCE SECOND RF PULSE READ SAMPLE OUTPUT

DERWENT-CLASS: S01 S03 S05

EPI-CODES: S01-E01; S01-H05; S03-E07; S05-D02X;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1990-179514

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC
Draw Desc | Clip Img | Image

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8. Document ID: EP 322968 A DE 3853353 G EP 322968 B1 NL 8703127 A US 4908578 A

L31: Entry 8 of 10 File: DWPI Jul 5, 1989

DERWENT-ACC-NO: 1989-194307
DERWENT-WEEK: 198927

TITLE: MRI using multiple-slice, multiple-echo pulse sequences - produces echo resonance signals in different sub-regions of body, and re-constructs images of regions

INVENTOR: VAN LIERE, F; VANLIERE, F

PATENT-ASSIGNEE:

ASSIGNEE	CODE
PHILIPS ELECTRONICS NV	PHIG
PHILIPS GLOEILAMPENFAB NV	PHIG

PRIORITY-DATA: 1987NL-0003127 (December 24, 1987)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 322968 A	July 5, 1989	E	015	
DE 3853353 G	April 20, 1995		000	G01N024/08
EP 322968 B1	March 15, 1995	E	019	G01N024/08
NL 8703127 A	July 17, 1989		000	
US 4908578 A	March 13, 1990		000	

DESIGNATED-STATES: DE FR GB NL DE FR GB NL

CITED-DOCUMENTS:DE 3721639; EP 128424 ; EP 152879 ; EP 213858 ; EP 223543 ; EP 259935 ; US 4577152 ; WO 8707029 ; DE 3345209

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 322968A	December 19, 1988	1988EP-0202966	
DE 3853353G	December 19, 1988	1988DE-3853353	
DE 3853353G	December 19, 1988	1988EP-0202966	
DE 3853353G		EP 322968	Based on
EP 322968B1	December 19, 1988	1988EP-0202966	
US 4908578A	December 23, 1988	1988US-0290075	

INT-CL (IPC): G01N 24/08; G01R 33/20

RELATED-ACC-NO: 1989-194295

ABSTRACTED-PUB-NO: EP 322968A
BASIC-ABSTRACT:

MRI utilises so-called multiple-slice, multiple-echo pulse sequences. Pulse sequences are generated in order to produce echo resonance signals in different sub-regions of a body, after which images of the various sub-regions are reconstructed from the resonance signals. The pulse sequences, for example spin echo sequences, are successively generated for the various sub-regions.

A pulse sequence for a sub-region is interleaved with pulse sequences for other sub-regions. It is essential that the excitation pulse, the echo pulses and the echo resonance signals are phase coherent within a pulse sequence.

ADVANTAGE - Reduced measuring time.
ABSTRACTED-PUB-NO:

EP 322968B
EQUIVALENT-ABSTRACTS:

A method for determining a nuclear magnetization distribution from magnetic resonance signals which are generated in a body situated in a steady and uniform magnetic field, the magnetic resonance signals being generated in sub-regions of the body by application of selective pulse sequences, such a pulse sequence comprising

- a selective RF electromagnetic excitation pulse (ex1) for exciting nuclear spins in a sub-region, applied prior to

- one or more magnetic field gradients (Gx, Gy, Gz), superposed on the uniform magnetic field, and

- at least one RF electromagnetic echo pulse (ep11, ep12) for generating a resonance signal from the excited nuclear spins,

- wherein at least one of said magnetic field gradients (Gy1) is variable in amplitude or direction between selective pulse sequences for a specific sub-region,

- the pulse sequences (ex1, ep11, ep12) being repeated a number of times for different values of the variable magnetic field gradients (Gy1) and

- subsequently, the nuclear magnetization distribution being determined from the resonance signals generated,

characterized in that

- each selective pulse sequence comprises at least two selective RF electromagnetic echo pulses (ep11, ep12) for generating a corresponding plurality of resonance signals (er11, er12),

- the selective RF electromagnetic excitation and echo pulses (ex1, ep11, ep12) in a pulse sequence associated with a sub-region and the magnetic resonance signals (er11, er12) generated thereby are interleaved in time with the RF electro-magnetic excitation and echo pulses (ex2, ep21, ep22; ex3, ep31, ep32) in pulse sequences associated with one or more other sub-regions and the magnetic resonance signals generated thereby (er21, er22; er31, er32), such that in between the RF excitation pulse (ex1) in a pulse sequence for a sub region and the last resonance signal (er12) generated by this pulse sequence magnetic field gradients associated with pulse sequences for other sub-regions are applied,

- the time intervals between the RF-pulses for a sub-region as well as the gradient waveforms associated with a sub-region are substantially the same for all sub-regions and, with respect to each of the echo pulses in the pulse sequence for a sub-region, the gradient waveforms of magnetic field gradients associated with other sub-regions are chosen such that dephasing and rephasing conditions for the nuclear spins are the same on both sides of the echo pulses, and in that,

- the RF electromagnetic excitation and echo pulses are phase coherent within a pulse sequence.

US 4908578A

MRI utilizes so-called multiple-slice multiple-echo pulse sequences. Pulse sequences are generated in order to produce echo resonance signals in different sub-regions of a body, after which images of the various sub-regions are reconstructed from the resonance signals. The pulse sequences, for example spin echo sequences, are successively generated for the various sub-regions. More than one echo resonance

signal can be generated by means of each pulse sequence. A pulse)sequence (ex1, ep11, er11, ep12, er12) is interleaved for a sub-region with pulse sequences (ep02, er-12, ex2, ep21, er21, er02, ex3, ep31, er31, ep22) for other sub-regions. It is essential that the excitation pulse (ex1), the echo pulses (ep11, ep12) and the echo resonance signals (er11, er12) are phase coherent within a pulse sequence.

ADVANTAGE - Reduces measuring time. (12pp)

CHOSEN-DRAWING: Dwg.1/6 Dwg.1/6

TITLE-TERMS: MRI MULTIPLE SLICE MULTIPLE ECHO PULSE SEQUENCE PRODUCE ECHO RESONANCE SIGNAL SUB REGION BODY CONSTRUCTION IMAGE REGION

ADDL-INDEXING-TERMS:
MAGNETIC RESONANCE IMAGE

DERWENT-CLASS: S03 S05

EPI-CODES: S03-E07; S05-D02X;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1989-148608

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Clip Img | Image

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9. Document ID: EP 270320 A CA 1256492 A DE 3781869 G EP 270320 B1 US 4767991 A US 4818942 A

L31: Entry 9 of 10 File: DWPI Jun 8, 1988

DERWENT-ACC-NO: 1988-156495
DERWENT-WEEK: 198823

TITLE: High-speed nuclear magnetic resonance imaging method - producing free induction decay signals and applies time varying phase encoding and read=out magnetic field gradients

INVENTOR: RZEDZIAN, R R

PATENT-ASSIGNEE:

ASSIGNEE	CODE
ADVANCED NMR SYSTEMS INC	ADNMN
ADV NMR SYST INCTEMS INC	ADNMN

PRIORITY-DATA: 1987US-0109091 (October 16, 1987), 1986US-0937529 (December 3, 1986), 1987US-0085568 (August 17, 1987)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 270320 A	June 8, 1988	E	046	
CA 1256492 A	June 27, 1989		000	
DE 3781869 G	October 29, 1992		000	G01R033/48
EP 270320 B1	September 23, 1992	E	031	G01R033/48
US 4767991 A	August 30, 1988		018	
US 4818942 A	April 4, 1989		014	

DESIGNATED-STATES: AT BE CH DE ES FR GB GR IT LI LU NL SE AT BE CH DE ES FR GB GR IT LI LU NL SE

CITED-DOCUMENTS:5.Jnl.Ref; A3...8921 ; EP 177990 ; GB 2079463 ; No-SR.Pub ; 05Jnl.Ref ; EP 240319

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 270320A	November 27, 1987	1987EP-0310510	
DE 3781869G	November 27, 1987	1987DE-3781869	
DE 3781869G	November 27, 1987	1987EP-0310510	
DE 3781869G		EP 270320	Based on
EP 270320B1	November 27, 1987	1987EP-0310510	
US 4767991A	August 17, 1987	1987US-0085568	
US 4818942A	October 16, 1987	1987US-0109091	

INT-CL (IPC): G01N 24/08; G01R 33/20; G01R 33/48

ABSTRACTED-PUB-NO: EP 270320A
BASIC-ABSTRACT:

The image data deriving method involves during a first interval exciting nuclear spins by superimposing the first gradient field (SLICE-SELECT), G2, having a predetermined pulse waveform. A spectrally-c ontrolled radio frequency pulse is applied with the gradient field pulse. An encoding sequence is then applied, during a second interval, to provide a second magnetic field gradient having a direction parallel to the spin plane, and a further magnetic field gradient (READ-OUT) of which the direction is also parallel to the spin plane and perpendicula r to the second gradient (PHASE-ENCODING). A further slice-selection gradient is applied so that the total dephasing effect is close to zero.

A sequence is applied of the second and third magnetic field gradients in alternation, which sequence is completed in a period of less than one length of a second. The output NMR signals are sampled during application of the read out gradients to provide time domain values for transformation into the spatial domain.

USE - Body biological diagnostic imaging.
ABSTRACTED-PUB-NO:

EP 270320B
EQUIVALENT-ABSTRACTS:

A method of deriving image information at high speed from an object using nuclear magnetic resonance signals, comprising the steps of: (a) subjecting an object to a continuous static magnetic field along an axis, said magnetic field having a strength between about 0.5 and 5 Tesla; (b) exciting nuclear spins in a selected plane of the object by applying to the object a first radio frequency pulse together with a first magnetic field gradient perpendicular to said plane comprising a slice selection gradient, such that free induction decay signals are produced by said excited nuclear spins in said plane; (c) applying to the object an encoding sequence comprising a second magnetic field gradient of a predetermined magnitude having a direction parallel to said plane together withh a third magnetic field gradient of a predetermined magnitude having a direction also parallel to said plane and perpendicular to said second gradient; (d) app

US 4767991A

High-speed imaging is performed with less than 100 percent of the spatial frequency domain (k-space) sampled. The trajectory extends over the k-space origin and the information acquired from the extension is sued to compensate for any phase errors. If the same number of points are collected as in a full k-space acquisition, signal bandwidth is maintained and spatial frequency response is increased. Two or more partial k-space acquisitions may be performed and then pieced together in a "mosaic" prior to Fourier transformation. Partial k-space acquisitions in the direction of the readout gradient may be combined with interleaved acquisitions in the direction of the phase-encoding gradient to avoid discontinuous. USE - Magnetic resonance imaging.

(18pp)

US 4818942A

An object to be imaged is placed in a high static magnetic field. Nuclear spins are excited in an image area in a selected plane of the object by superimposing a slice-selection gradient along an axis and applying a pulse of radio frequency magnetic field. Following an encoding pulse sequence and rephasing of the nuclear spins by the application of a 180 deg. radio frequency pulse, mutually orthogonal phase-encoding and readout gradients are alternately applied in the image plane to effect a traversal through spatial frequency domain (k-space). Pref. the readout gradient is applied as a continuous sinusoidal wave, resulting in a slight overlap between the phase-encoding and readout gradients. If phase errors vary slowly in time, only a partial k-space trajectory is required.Chemical shift is eliminated either by the application of a suppression pulse of RF field or by tailoring the frequency spectrum of the rephasing pulse so as to preclude rephasing of one or other of the chemical moieties.

(14pp)

CHOSEN-DRAWING: Dwg.1/11

TITLE-TERMS: HIGH SPEED NUCLEAR MAGNETIC RESONANCE IMAGE METHOD

PRODUCE FREE INDUCTION DECAY SIGNAL APPLY TIME VARY PHASE ENCODE READ=OUT MAGNETIC FIELD GRADIENT

ADDL-INDEXING-TERMS:
NMR

DERWENT-CLASS: S01 S03 S05

EPI-CODES: S03-E07; S05-D02X;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1988-119576

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Clip Img | Image

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10. Document ID: EP 84946 A DE 3380449 G EP 84946 B JP 58124936 A US 4439733 A

L31: Entry 10 of 10 File: DWPI Aug 3, 1983

DERWENT-ACC-NO: 1983-730370
DERWENT-WEEK: 198332

TITLE: Magnetic field component generator or detector for NMR system - has conductors spaced about axis of magnet in which current amplitudes are controlled to generate uniform composite magnetic fields

INVENTOR: GAUSS, R C; HINSHAW, W S

PATENT-ASSIGNEE:

ASSIGNEE	CODE
TECHNICARE CORP	TCAR

PRIORITY-DATA: 1982US-0340134 (January 18, 1982), 1980US-0182525 (August 28, 1980)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 84946 A	August 3, 1983	E	042	
DE 3380449 G	September 28, 1989		000	
EP 84946 B	August 23, 1989	E	000	
JP 58124936 A	July 25, 1983		000	
US 4439733 A	March 27, 1984		000	

DESIGNATED-STATES: BE DE FR GB NL SE BE DE FR GB NL SE

CITED-DOCUMENTS:EP 47065; FR 2441842 ; GB 2050062

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 4439733A	January 18, 1982	1982US-0340134	

INT-CL (IPC): A61B 10/00; G01N 24/06; G01R 33/08; H01F 5/00

ABSTRACTED-PUB-NO: EP 84946A
BASIC-ABSTRACT:

The conductors (130) extend between the edges of a conductive strip (114a, b) at either end of the coil form (112) which is a non-magnetic insulator such as polyethylene, which is not affected by radio-frequency energy. The conductors may each be formed by the centre conductor of a coaxial line of which the outer conductor is removed in a region (116-118). The centre conductor then forms an electrical closed-loop circuit.

Radio-frequency energy is coupled inductively into the coil assembly (100) to produce a radio-frequency magnetic field in the bore (123). At the resonant frequency of the coil the length of the closed loop is one wavelength. Consequently, the amplitude of the current induced in each conductor (130) depends on its respective position in the wavelength surrounding the axis (c). The conductors generate a composite magnetic field which, when a standing wave is set up, is uniform transversely to the axis.
ABSTRACTED-PUB-NO:

EP 84946B
EQUIVALENT-ABSTRACTS:

The conductors (130) extend between the edges of a conductive strip (114a, b) at either end of the coil form (112) which is a non-magnetic insulator such as polyethylene, which is not affected by radio-frequency energy. The conductors may each be formed by the centre conductor of a coaxial line of which the outer conductor is removed in a region (116-118). The centre conductor then forms an electrical closed-loop circuit.

Radio-frequency energy is coupled inductively into the coil assembly (100) to produce a radio-frequency magnetic field in the

bore (123). At the resonant frequency of the coil the length of the closed loop is one wavelength. Consequently, the amplitude of the current induced in each conductor (130) depends on its respective position in the wavelength surrounding the axis (c). The conductors generate a composite magnetic field which, when a standing wave is set up, is uniform transversely to the axis.

US 4439733A

The appts. has conductive elements spaced from one another and from the axis along which the static magnetic field is directed. The relative amplitudes of alternating currents in the conductive elements are controlled to generate a spatially uniform field. Pref. a standing wave is used in a coil assembly to control relative current amplitudes, which takes advantage of the current-phase characteristics of such waves, as it establishes relative amplitudes of the currents in the elements.

Detection of RF magnetic fields results from an EMF generated in the

coil assembly in response to the time-varying magnetic field; the high Q of the coil assembly enhances detection properties. (18pp)

CHOSEN-DRAWING: Dwg.6/11 Dwg.6/11

TITLE-TERMS: MAGNETIC FIELD COMPONENT GENERATOR DETECT NMR SYSTEM CONDUCTOR SPACE AXIS MAGNET CURRENT AMPLITUDE CONTROL GENERATE UNIFORM COMPOSITE MAGNETIC FIELD

DERWENT-CLASS: P31 S03 S05 V02

EPI-CODES: S03-E07; S05-D02X; V02-D;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1983-137919

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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